DI09 072M. 221 kW (300 hp)
IMO Tier II, EU Stage IIIA

The marine 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 engines are type approved in all major classification societies.

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 based on electronically controlled unit injectors that gives low exhaust emissions with good fuel economy and a high torque already at low revs.

The engine can be fitted with many accessories such as air cleaners, PTOs, transmissions and type approved instrumentation in order to suit a variety of installations.

<table>
<thead>
<tr>
<th>Standard equipment</th>
<th>Optional equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Scania Engine Management System, EMS</td>
<td>• Scania Engine Management System, EMS</td>
</tr>
<tr>
<td>• Unit injectors, PDE</td>
<td>• Scania Engine Management System, EMS</td>
</tr>
<tr>
<td>• Turbocharger</td>
<td>• Unit injectors, PDE</td>
</tr>
<tr>
<td>• Fuel pre-filter with water separator</td>
<td>• Turbocharger</td>
</tr>
<tr>
<td>• Fuel filter</td>
<td>• Fuel pre-filter with water separator</td>
</tr>
<tr>
<td>• Oil filter, full flow</td>
<td>• Fuel filter</td>
</tr>
<tr>
<td>• Centrifugal oil cleaner</td>
<td>• Oil filter, full flow</td>
</tr>
<tr>
<td>• Oil cooler, integrated in block</td>
<td>• Centrifugal oil cleaner</td>
</tr>
<tr>
<td>• Oil filler, in engine block</td>
<td>• Oil cooler, integrated in block</td>
</tr>
<tr>
<td>• Oil dipstick, in block</td>
<td>• Oil filler, in engine block</td>
</tr>
<tr>
<td>• Starter, 2-pole 7.0 kW</td>
<td>• Oil dipstick, in block</td>
</tr>
<tr>
<td>• Alternator, 2-pole 100A</td>
<td>• Starter, 2-pole 7.0 kW</td>
</tr>
<tr>
<td>• Flywheel SAE 14</td>
<td>• Alternator, 2-pole 100A</td>
</tr>
<tr>
<td>• Silumin flywheel housing, SAE 1 flange</td>
<td>• Flywheel SAE 14</td>
</tr>
<tr>
<td>• Front-mounted engine brackets</td>
<td>• Silumin flywheel housing, SAE 1 flange</td>
</tr>
<tr>
<td>• Protection covers</td>
<td>• Front-mounted engine brackets</td>
</tr>
<tr>
<td>• Closed crankcase ventilation</td>
<td>• Protection covers</td>
</tr>
<tr>
<td>• Operator’s manual</td>
<td>• Closed crankcase ventilation</td>
</tr>
</tbody>
</table>

Engines with heat exchanger:
• Sea water pump
• Heat exchanger with expansion tank

Optional equipment
• Hydraulic pump
• Side-mounted PTO
• Front-mounted PTO
• Exhaust connections
• Electrical base system
• Control and instrument panels
• Accelerator position sensor
• Engine heater
• Power pack engine bracket
• Stiff rubber suspension
• Air cleaner
• Studs in flywheel housing
• Reversible fuel filter
• Low coolant level reaction
• Variable idle speed setting
• Low oil sump
• Long oil dipstick
• Oil level sensor
• Bilge pump

Standard equipment

Standard equipment

<table>
<thead>
<tr>
<th>Engine speed (rpm)</th>
<th>Engine speed (rpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200</td>
<td>1500</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gross power, full load (kW)</th>
<th>IFN</th>
<th>204</th>
<th>221</th>
<th>221</th>
<th>221</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross power, full load (hp, metric)</td>
<td>IFN</td>
<td>277</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Gross power, propeller curve (kW)</td>
<td>IFN</td>
<td>55</td>
<td>95</td>
<td>150</td>
<td>221</td>
</tr>
<tr>
<td>Gross power, propeller curve (hp, metric)</td>
<td>IFN</td>
<td>74</td>
<td>130</td>
<td>204</td>
<td>300</td>
</tr>
<tr>
<td>Gross torque (Nm)</td>
<td>IFN</td>
<td>1623</td>
<td>1407</td>
<td>1172</td>
<td>1005</td>
</tr>
<tr>
<td>Spec fuel consumption. Full load (g/kWh)</td>
<td>IFN</td>
<td>200</td>
<td>192</td>
<td>196</td>
<td>210</td>
</tr>
<tr>
<td>Spec fuel consumption. 3/4 load (g/kWh)</td>
<td>IFN</td>
<td>196</td>
<td>194</td>
<td>199</td>
<td>213</td>
</tr>
<tr>
<td>Spec fuel consumption. 1/2 load (g/kWh)</td>
<td>IFN</td>
<td>199</td>
<td>202</td>
<td>210</td>
<td>228</td>
</tr>
<tr>
<td>Spec fuel consumption. Propeller curve (l/h)</td>
<td>IFN</td>
<td>14</td>
<td>23</td>
<td>36</td>
<td>55</td>
</tr>
<tr>
<td>Optimum fuel consumption (g/kWh)</td>
<td>IFN</td>
<td>191</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heat rejection to coolant (kW)</td>
<td>IFN</td>
<td>155</td>
<td>156</td>
<td>164</td>
<td>178</td>
</tr>
</tbody>
</table>

IFN – Intermittent service: Intended for intermittent use where rated power is available 1 h/3 h. Accumulated load factor must not exceed 80% of rated power. Unlimited h/year service time.
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### Engine description

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of cylinders</td>
<td>5 in-line</td>
</tr>
<tr>
<td>Working principle</td>
<td>4-stroke</td>
</tr>
<tr>
<td>Firing order</td>
<td>1 - 2 - 4 - 5 - 3</td>
</tr>
<tr>
<td>Displacement</td>
<td>9.3 litres</td>
</tr>
<tr>
<td>Bore x stroke</td>
<td>130 x 140 mm</td>
</tr>
<tr>
<td>Compression ratio</td>
<td>18:1</td>
</tr>
<tr>
<td>Weight (incl oil and coolant)</td>
<td>1150 kg</td>
</tr>
<tr>
<td>Weight (incl oil and coolant)</td>
<td>1044 kg</td>
</tr>
<tr>
<td>Piston speed at 1500 rpm</td>
<td>7.0 m/s</td>
</tr>
<tr>
<td>Piston speed at 1800 rpm</td>
<td>8.4 m/s</td>
</tr>
<tr>
<td>Camshaft</td>
<td>High position alloy steel</td>
</tr>
<tr>
<td>Pistons</td>
<td>Aluminum pistons</td>
</tr>
<tr>
<td>Connection rods</td>
<td>I-section press forgings of alloy steel</td>
</tr>
<tr>
<td>Crankshaft</td>
<td>Alloy steel with hardened and polished bearing surfaces</td>
</tr>
<tr>
<td>Oil capacity</td>
<td>32-38 dm³ (standard oil sump)</td>
</tr>
<tr>
<td>Electrical system</td>
<td>2-pole 24V</td>
</tr>
</tbody>
</table>

**Output**

- **kW**
  - 110
  - 120
  - 130
  - 140
  - 150
  - 160
  - 170
  - 180
  - 190
  - 200
  - 210
  - 220
  - 230
  - 240
  - 250
  - 260
  - 270
  - 280
  - 290
  - 300

- **hp**
  - 150
  - 200
  - 250
  - 300

**Torque**

- **Nm**
  - 900
  - 1100
  - 1300
  - 1500
  - 1700
  - 1900
  - 2100
  - 2300
  - 2500
  - 2700
  - 2900
  - 3100

- **rpm**
  - 450
  - 500
  - 550
  - 600
  - 650
  - 700
  - 750
  - 800
  - 850
  - 900
  - 950
  - 1000

**Spec fuel consumption**

- **g/kWh**
  - 230
  - 200
  - 170
  - 140
  - 110
  - 80
  - 50

- **l/h**
  - 900
  - 1100
  - 1300
  - 1500
  - 1700
  - 1900
  - 2100

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Test conditions:
- Air temperature +25°C.
- Barometric pressure 101 kPa (750 mmHg).
- Humidity 30%.
- 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 +/-1%.

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Diagram of the engine with heat exchanger.

All dimensions in mm.

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