**Certified**:

This diesel engine complies with or is certified to the following agencies requirements:

- EPA Tier 3 - Model year requirements of the EPA marine regulation (40CFR1042)
- EU Stage IIIa - EC Nonroad Mobile Machinery Directive (2004/26/EC)
- IMO Tier II (Two) NOx requirements of International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13

**Full Throttle Requirements**:

- Engine achieves or exceeds rated rpm at full throttle under any steady operating condition
- Engine achieves or exceeds rated rpm when accelerating from idle to full throttle

**Rated Conditions**: Ratings are based upon ISO 15550 reference conditions, air pressure of 100 kPa [29.612 in Hg], air temperature 25deg. C [77 deg. F] and 30% relative humidity. Member NMMA. Unless otherwise specified, tolerance on all values is +/-5%. Values from engine control modules and displayed on instrument panels are not absolute. Tolerance varies, but is generally less than +/-5% when operating within 30% of rated power.

**Full Throttle curve** represents power at the crankshaft for mature gross engine performance corrected in accordance with ISO 15550. Propeller Curve represents approximate power demand from a typical propeller. Propeller Shaft Power is approximately 3% less than rated crankshaft power after typical reverse/reduction gear losses and may vary depending on the type of gear or propulsion system used.

**Fuel Consumption** is based on fuel of 35 deg. API gravity at 16 deg C [60 deg. F] having LHV of 42,780 kj/kg [18390 Btu/lb] and weighing 838.9 g/liter [7.001 lb/U.S. gal].

Heavy Duty (HD): Intended for continuous use in variable load applications where full power is limited to eight (8) hours out of every ten (10) hours of operation. Also, reduced power operations must be at or below 200 rpm of the maximum rated rpm. This is an ISO 15550 fuel stop power rating and is for applications that operate 5,000 hours per year or less.
### General Engine Data

**Engine Model**

<table>
<thead>
<tr>
<th>Rating Type</th>
<th>Heavy Duty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Engine Power</td>
<td>246 [330] kW [hp]</td>
</tr>
<tr>
<td>Rated Engine Speed</td>
<td>1800 rpm</td>
</tr>
<tr>
<td>Rated Power Production Tolerance</td>
<td>±5%</td>
</tr>
<tr>
<td>Peak Engine Torque @ 1400 rpm</td>
<td>1305 [963] N·m [lb·ft]</td>
</tr>
<tr>
<td>Brake Mean Effective Pressure</td>
<td>1847 [268] kPa [psi]</td>
</tr>
<tr>
<td>Indicated Mean Effective Pressure</td>
<td>2116 [307] kPa [psi]</td>
</tr>
<tr>
<td>Maximum Allowable Engine Speed</td>
<td>1900 rpm</td>
</tr>
<tr>
<td>Maximum Torque Capacity from Front of Crank²</td>
<td>705 [520] N·m [lb·ft]</td>
</tr>
</tbody>
</table>

#### Compression Ratio

16.6:1

#### Piston Speed

8.7 [1713] m/sec [ft/min]

#### Firing Order

1-5-3-6-2-4

#### Weight (Dry) - Engine With Heat Exchanger System - Average

977 [2153] kg [lb]

### Governor Settings

**Default Droop Value**

0%

**High Speed Governor Break Point**

1875 rpm

**Minimum Idle Speed Setting**

600 rpm

**Normal Idle Speed Variation**

±10 rpm

**High Idle Speed Range**

Minimum: 1875 rpm  
Maximum: 1895 rpm

### Noise and Vibration

**Average Noise Level - Top**

(Idle): 84 dBA @ 1m  
(Rated): 96 dBA @ 1m

**Average Noise Level - Right Side**

(Idle): 84 dBA @ 1m  
(Rated): 96 dBA @ 1m

**Average Noise Level - Left Side**

(Idle): 84 dBA @ 1m  
(Rated): 96 dBA @ 1m

**Average Noise Level - Front**

(Idle): 84 dBA @ 1m  
(Rated): 96 dBA @ 1m

### Fuel System¹

**Avg. Fuel Consumption - ISO 8178 E3 Standard Test Cycle**

43.6 [11.5] l/hr [gal/hr]

**Fuel Consumption at Rated Speed**

63.1 [16.7] l/hr [gal/hr]

**Approximate Fuel Flow to Pump**

113.6 [30.0] l/hr [gal/hr]

**Maximum Allowable Fuel Supply to Pump Temperature**

60.0 [140] °C [°F]

**Approximate Fuel Flow Return to Tank**

50.4 [13.3] l/hr [gal/hr]

**Approximate Fuel Return to Tank Temperature**

61.7 [143] °C [°F]

**Maximum Heat Rejection to Drain Fuel**

0.5 [29] kW [Btu/min]

**Fuel Pressure - Pump Out/Rail, Mechanical Gauge**

1151 [167] kPa [psi]

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² No rear loads can be applied when the FPTO is fully loaded. Max PTO torque is contingent on torsional analysis results for the specific drive system. Consult Installation Direction Booklet for Limitations.

³ Heat rejection to coolant values are based on 50% water/50% ethylene glycol mix and do NOT include fouling factors. If sourcing your own cooler, a service fouling factor should be applied according to the cooler manufacturer's recommendation.

⁴ Consult option notes for flow specifications of optional Cummins seawater pumps, if applicable.

_CUMMINS INC._

_COLUMBUS, INDIANA_

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http://marine.cummins.com
### Propulsion Marine Engine Performance Data

**Curve No. M-94507**

**DS:** D56-MX-1  
**CPL:** 4254  
**DATE:** 22-Feb-17

<table>
<thead>
<tr>
<th><strong>Air System¹</strong></th>
<th><strong>Exhaust System¹</strong></th>
<th><strong>Emissions (in accordance with ISO 8178 Cycle E3)</strong></th>
<th><strong>Emissions (in accordance with ISO 8178 Cycle E2)</strong></th>
<th><strong>Cooling System¹</strong></th>
<th><strong>Engines without Low Temperature Aftercooling (LTA )</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Intake Manifold Pressure</td>
<td>Exhaust Gas Flow</td>
<td>NOx (Oxides of Nitrogen)</td>
<td>NOx (Oxides of Nitrogen)</td>
<td>Sea Water Pump Specifications</td>
<td>Sea Water Aftercooled Engine (SWAC)</td>
</tr>
<tr>
<td>Intake Air Flow</td>
<td>Exhaust Gas Temperature (Turbine Out)</td>
<td>NOx (Oxides of Nitrogen)</td>
<td>NOx (Oxides of Nitrogen)</td>
<td>Pressure Cap Rating</td>
<td>Coolant Flow to Engine Heat Exchanger</td>
</tr>
<tr>
<td>Heat Rejection to Ambient</td>
<td>Exhaust Gas Temperature (Manifold)</td>
<td>HC (Hydrocarbons)</td>
<td>HC (Hydrocarbons)</td>
<td>Max. Coolant Outlet Pressure from the Engine</td>
<td>Standard Thermostat Operating Range (Start to Open)</td>
</tr>
<tr>
<td>Intake Manifold Pressure</td>
<td>Exhaust Gas Temperature (Turbine Out)</td>
<td>CO (Carbon Monoxide)</td>
<td>CO (Carbon Monoxide)</td>
<td>Max. Pressure Drop Across Any External Cooling System Circuit</td>
<td>Standard Thermostat Operating Range (Full Open)</td>
</tr>
<tr>
<td>Intake Air Flow</td>
<td>Exhaust Gas Temperature (Manifold)</td>
<td>PM (Particulate Matter)</td>
<td>PM (Particulate Matter)</td>
<td>Heat Rejection to Engine Coolant³</td>
<td>Heat Rejection to Engine Coolant³</td>
</tr>
<tr>
<td>Heat Rejection to Ambient</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>kPa [in Hg]</td>
<td>l/sec [cfm]</td>
<td>g/kw·hr [g/hp·hr]</td>
<td>g/kw·hr [g/hp·hr]</td>
<td>kPa [psi]</td>
<td>l/min [gal/min]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>299 [634]</td>
<td></td>
<td>433 [810]</td>
<td>71 [160]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>19 [1081.2325]</td>
<td></td>
<td>607 [1,123]</td>
<td>82 [180]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.03 [3.75]</td>
<td></td>
<td>5.87 [4.38]</td>
<td>71 [160]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.20 [0.15]</td>
<td></td>
<td>0.15 [0.11]</td>
<td>82 [180]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.97 [0.72]</td>
<td></td>
<td>0.33 [0.25]</td>
<td>N/A [N.A.]</td>
</tr>
</tbody>
</table>

**Emissions (in accordance with ISO 8178 Cycle E2)**

<table>
<thead>
<tr>
<th>NOx (Oxides of Nitrogen)</th>
<th>HC (Hydrocarbons)</th>
<th>CO (Carbon Monoxide)</th>
<th>PM (Particulate Matter)</th>
</tr>
</thead>
<tbody>
<tr>
<td>g/kw·hr [g/hp·hr]</td>
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</tr>
<tr>
<td>5.03 [3.75]</td>
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<td>0.97 [0.72]</td>
<td>0.04 [0.03]</td>
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<tr>
<td>5.87 [4.38]</td>
<td>0.15 [0.11]</td>
<td>0.33 [0.25]</td>
<td></td>
</tr>
</tbody>
</table>

**Cooling System¹**

<table>
<thead>
<tr>
<th>Sea Water Pump Specifications</th>
<th>Pressure Cap Rating</th>
<th>Max. Coolant Outlet Pressure from the Engine</th>
<th>Max. Pressure Drop Across Any External Cooling System Circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>l/min [gal/min]</td>
<td>kPa [psi]</td>
<td>kPa [psi]</td>
<td>kPa [psi]</td>
</tr>
</tbody>
</table>

**Engines without Low Temperature Aftercooling (LTA )**

<table>
<thead>
<tr>
<th>Sea Water Aftercooled Engine (SWAC)</th>
<th>Coolant Flow to Engine Heat Exchanger</th>
<th>Standard Thermostat Operating Range (Start to Open)</th>
<th>Standard Thermostat Operating Range (Full Open)</th>
<th>Heat Rejection to Engine Coolant³</th>
</tr>
</thead>
</table>

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TBD= To Be Determined  
N/A = Not Applicable  
N.A. = Not Available

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