CERTIFIED: This diesel engine complies with or is certified to the following agencies requirements:
IMO Tier I - Tier 1 (One) NOx requirements of International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13
EPA Tier 2 - Model year requirements of the EPA marine regulation (40CFR94)

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. Power is in accordance with IMCI procedure. Member NMMA. Unless otherwise specified, tolerance on all values is +/-5%.

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 de[ gasoline. 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].

High Output (HO): Intended for use in variable load applications where full power is limited to one hour out of every eight hours of operation. Also, reduced power must be at or below 300 rpm of the maximum rated rpm. This power rating is for pleasure/non-revenue generating applications that operate 500 hours per year or less.
Propulsion Marine Engine Performance Data

General Engine Data

Engine Model: QSB5.9-425 HO
Rating Type: High Output
Rated Engine Power: 313 [420] kW [hp]
Rated Engine Speed: 3000 rpm
Rated Power Production Tolerance: ±5%
Rated Engine Torque: 997 [735] N·m [lb·ft]
Peak Engine Torque @ 2000 rpm: 1231 [908] N·m [lb·ft]
Brake Mean Effective Pressure: 2129 [309] kPa [psi]
Indicated Mean Effective Pressure: N.A. [N.A.]
Maximum Allowable Engine Speed: 3085 rpm
Peak Engine Torque @ 2000 rpm: 1231 [908] N·m [lb·ft]
Compressed Ratio: 16.7:1
Piston Speed: 12.0 [2362] m/sec [ft/min]
Firing Order: 1-5-3-6-2-4
Weight (Dry) - Engine Only - Average: N.A. [N.A.]
Weight (Dry) - Engine With Heat Exchanger System - Average: 612 [1350] kg [lb]
Weight Tolerance (Dry) Engine Only: N.A.

Governor Settings

High Speed Governor Break Point: 3065 rpm
Minimum Idle Speed Setting: 600 rpm
Normal Idle Speed Variation: ±10 rpm
High Idle Speed Range: Minimum 3065 rpm, Maximum 3085 rpm

Noise and Vibration

Average Noise Level - Top (Idle): 76 dBA @ 1m
Mean Noise Level - Top (Rated): 99 dBA @ 1m
Average Noise Level - Right Side (Idle): 76 dBA @ 1m
Mean Noise Level - Right Side (Rated): 101 dBA @ 1m
Average Noise Level - Left Side (Idle): 77 dBA @ 1m
Mean Noise Level - Left Side (Rated): 107 dBA @ 1m
Average Noise Level - Front (Idle): 76 dBA @ 1m
Mean Noise Level - Front (Rated): 100 dBA @ 1m

Fuel System¹

Fuel Consumption at Rated Speed: 87.6 [23.1] l/hr [gal/hr]
Approximate Fuel Flow to Pump: 189.3 [50.0] l/hr [gal/hr]
Maximum Allowable Fuel Supply to Pump Temperature: 60.0 [140] °C [°F]
Approximate Fuel Flow Return to Tank: 101.7 [26.9] l/hr [gal/hr]
Approximate Fuel Return to Tank Temperature: 65.6 [150] °C [°F]
Maximum Heat Rejection to Drain Fuel: 1.3 [76] kW [Btu/min]
Fuel Transfer Pump Pressure Range: N.A.
INSITE Reading: 150002 [21756] kPa [psi]

¹ Unless otherwise specified, all data is at rated power conditions and can vary ±5%.
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.
⁵ May not be at rated load and speed. Maximum heat rejection may occur at other than rated conditions.
**Propulsion Marine Engine Performance Data**

<table>
<thead>
<tr>
<th>Air System¹</th>
<th>Intake Manifold Pressure</th>
<th>kPa [in Hg]</th>
<th>235 [70]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intake Air Flow</td>
<td>l/sec [cfm]</td>
<td>378 [800]</td>
</tr>
<tr>
<td></td>
<td>Heat Rejection to Ambient</td>
<td>kW [Btu/min]</td>
<td>26 [1487]</td>
</tr>
</tbody>
</table>

**Exhaust System¹**

| Exhaust Gas Flow | l/sec [cfm] | 861 [1825] |
| Exhaust Gas Temperature (Turbine Out) | °C [°F] | 499 [930] |
| Exhaust Gas Temperature (Manifold) | °C [°F] | 684 [1263] |

**Emissions (in accordance with ISO 8178 Cycle E3)**

| NOx (Oxides of Nitrogen) | g/kW·hr [g/hp·hr] | 5.17 [3.85] |
| HC (Hydrocarbons) | g/kW·hr [g/hp·hr] | 0.16 [0.12] |
| CO (Carbon Monoxide) | g/kW·hr [g/hp·hr] | 0.51 [0.38] |
| PM (Particulate Matter) | g/kW·hr [g/hp·hr] | 0.07 [0.05] |

**Cooling System¹**

| Sea Water Pump Specifications | MAB 0.08.17-07/16/2001 |
| Pressure Cap Rating (With Heat Exchanger Option) | kPa [psi] | 103 [15] |

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

**Sea Water Aftercooled Engine (SWAC)**

| Coolant Flow to Engine Heat Exchanger | l/min [gal/min] | 273 [72] |
| Standard Thermostat Operating Range (Start to Open) | °C [°F] | 74 [165] |
| Standard Thermostat Operating Range (Full Open) | °C [°F] | 85 [185] |
| Heat Rejection to Engine Coolant³ | kW [Btu/min] | 258 [14700] |

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¹ Unless otherwise specified, all data is at rated power conditions and can vary ± 5%.
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.
³ May not be at rated load and speed. Maximum heat rejection may occur at other than rated conditions.

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All Data is Subject to Change Without Notice - Consult the following Cummins intranet site for most recent data: [http://cmdmarine.com/](http://cmdmarine.com/)