### Marine Performance Curves

**CUMMINS INC.**
Columbus, IN 47201

**Engine Model:**
QSB5.9-305 MCD

**Curve Number:**
M-91365

**Engine Configuration:**
D403075MX03

**CPL Code:**
8464

**Date:**
12-May-10

**Displacement:**
5.9 liter [359 in³]

**Rated Power:**
224 kw [300 bhp, 305 mhp]

**Bore:**
102 mm [4.02 in]

**Rated Speed:**
2600 rpm

**Stroke:**
120 mm [4.72 in]

**Rating Type:**
Medium Continuous Duty

**Fuel System:**
HPCR

**Aspiration:**
Turbocharged / Sea Water Aftercooled

**Cylinders:**
6

**Speed**

<table>
<thead>
<tr>
<th>rpm</th>
<th>Power (kw)</th>
<th>Power (hp)</th>
<th>Torque (N·m)</th>
<th>Torque (ft-lb)</th>
<th>Fuel Cons. (L/hr)</th>
<th>Fuel Cons. (gal/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2665</td>
<td>224</td>
<td>300</td>
<td>802</td>
<td>591</td>
<td>57.3</td>
<td>15.1</td>
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<tr>
<td>2600</td>
<td>224</td>
<td>300</td>
<td>822</td>
<td>606</td>
<td>57.3</td>
<td>15.1</td>
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<tr>
<td>2400</td>
<td>221</td>
<td>296</td>
<td>879</td>
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<td>1018</td>
<td>751</td>
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<td>8.1</td>
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<td>200</td>
<td>268</td>
<td>1062</td>
<td>783</td>
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<td>206</td>
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<td>77</td>
<td>552</td>
<td>407</td>
<td>5.4</td>
<td>1.4</td>
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<tr>
<td>800</td>
<td>42</td>
<td>57</td>
<td>506</td>
<td>373</td>
<td>3.8</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**Full Throttle Requirements:**

- Engine achieves or exceeds rated rpm at full throttle under any steady operating condition
- Engines in variable displacement boats (such as pushboats, tugboats, net draggers, etc.) achieve no less than 100 rpm below rated speed at full throttle during a dead push or bollard pull
- Engine achieves or exceeds rated rpm when accelerating from idle to full throttle

**Rated Conditions:**
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%.

**Fuel Consumption:**
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 [15390 Btu/lb] and weighing 838.9 g/liter [7.001 lb/U.S. gal].

**Medium Continuous (MCD):** Intended for continuous use in variable load applications where full power is limited to six hours out of every twelve hours of operation. Also, reduced power operations must be at or below 200 rpm of the maximum rated rpm. This rating is an ISO 15550 fuel stop power rating and is for applications that operate less than 3,000 hours per year.
## General Engine Data

- **Engine Model**: QSB5.9-305 MCD Medium Continuous Duty
- **Rated Engine Power**: 224 [300] kW [hp]
- **Rated Engine Speed**: 2600 rpm
- **Rated Power Production Tolerance**: ±5\%
- **Rated Engine Torque**: 822 [606] N·m [lb·ft]
- **Peak Engine Torque @ 1800 rpm**: 1062 [783] N·m [lb·ft]
- **Brake Mean Effective Pressure**: 1755 [255] kPa [psi]
- **Indicated Mean Effective Pressure**: N.A. [N.A.]
- **Maximum Allowable Engine Speed**: 2685 rpm
- **Piston Speed**: 10.4 [2047] m/sec [ft/min]
- **Compression Ratio**: 17.2:1
- **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**: ±3xStd Dev(±%)

## Governor Settings

- **High Speed Governor Break Point**: 2665 rpm
- **Minimum Idle Speed Setting**: 600 rpm
- **Normal Idle Speed Variation**: ±10 rpm
- **High Idle Speed Range Minimum**: 2665 rpm

## Noise and Vibration

- **Average Noise Level - Top (Idle)**: 76 dBA @ 1m
- **Average Noise Level - Right Side (Idle)**: 97 dBA @ 1m
- **Average Noise Level - Left Side (Idle)**: 77 dBA @ 1m
- **Average Noise Level - Front (Idle)**: 76 dBA @ 1m

## Fuel System

- **Avg. Fuel Consumption - ISO 8178 E3 Standard Test Cycle**: 38.7 [10.2] l/hr [gal/hr]
- **Fuel Consumption at Rated Speed**: 57.3 [15.1] 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**: 132.0 [34.9] l/hr [gal/hr]
- **Approximate Fuel Return to Tank Temperature**: 65.6 [150] °C [°F]
- **Maximum Heat Rejection to Drain Fuel**: 1.7 [98] kW [Btu/min]
- **Fuel Transfer Pump Pressure Range**: 76 [11] kPa [psi]
- **Fuel Pressure - Pump Out/Rail Mechanical Gauge**: N.A.
- **INSITE Reading**: 135999 [19725] kPa [psi]

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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.
5. May not be at rated load and speed. Maximum heat rejection may occur at other than rated conditions.

CUMMINS ENGINE COMPANY, INC
COLUMBUS, INDIANA

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# Propulsion Marine Engine Performance Data

**Curve No.** M-91365  
**DS :** 3075  
**CPL :** 8464  
**DATE:** 12-May-10

## Air System¹
- Intake Manifold Pressure ................................................................. kPa [in Hg] 172 [51]  
- Intake Air Flow ................................................................. l/sec [cfm] 278 [589]  
- Heat Rejection to Ambient ......................................................... kW [Btu/min] 17 [966]

## Exhaust System¹
- Exhaust Gas Flow ................................................................. l/sec [cfm] 600 [1272]  
- Exhaust Gas Temperature (Turbine Out) ......................................................... °C [°F] 421 [789]  
- Exhaust Gas Temperature (Manifold) ......................................................... °C [°F] 559 [1038]

## Emissions (in accordance with ISO 8178 Cycle E3)
- NOx (Oxides of Nitrogen) ................................................................. g/kw·hr [g/hp·hr] 6.23 [4.64]  
- HC (Hydrocarbons) ................................................................. g/kw·hr [g/hp·hr] 0.10 [0.08]  
- CO (Carbon Monoxide) ................................................................. g/kw·hr [g/hp·hr] 0.21 [0.16]  
- PM (Particulate Matter) ................................................................. g/kw·hr [g/hp·hr] 0.10 [0.08]

## 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] 238 [63]  
- 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] 166 [9470]

## Engines with Low Temperature Aftercooling (LTA )
### Single Loop LTA
- Coolant Flow to Cooler (with blocked open thermostat) ................................................................. l/min [gal/min] 238 [63]  
- LTA Thermostat Operating Range (Start to Open) ......................................................... °C [°F] 66 [150]  
- LTA Thermostat Operating Range (Full Open) ......................................................... °C [°F] 80 [175]  
- Heat Rejection to Engine Coolant³ ......................................................... kW [Btu/min] 183 [10420]  
- Maximum Coolant Inlet Temperature from LTA Cooler ......................................................... °C [°F] 54 [130]

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