



**CUMMINS MERCURISER DIESEL**  
 Charleston, SC 29405  
 Marine Performance Curves

Basic Engine Model:  
**QSB5.9-330 HO**  
 Engine Configuration:  
**D403075MX03**

Curve Number:  
**M-91366**

CPL Code	Date:
8464	15-May-06

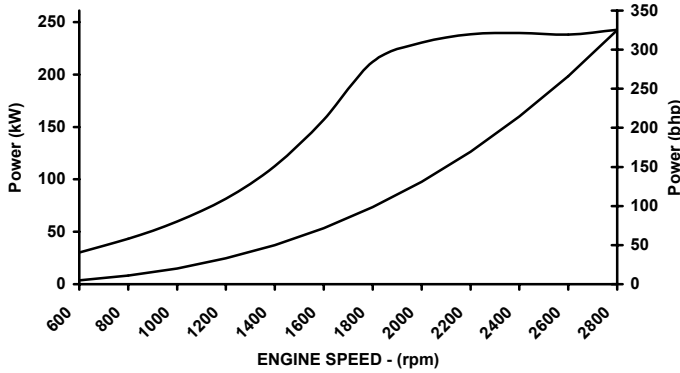
Displacement: **5.9 liter** [359 in<sup>3</sup>]  
 Bore: **102 mm** [4.02 in]  
 Stroke: **120 mm** [4.72 in]  
 Fuel System: **HPCR**  
 Cylinders: **6**

Advertised Power: **243 [325, 330] @ 2800**  
 kW [bhp, mhp] @ rpm

Aspiration: **Turbocharged / Sea Water Aftercooled**  
 Rating Type: **High Output**

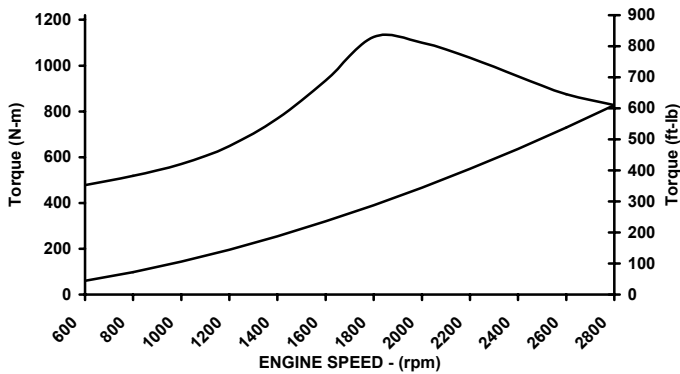
CERTIFIED: This marine diesel engine is certified to the model year requirements of EPA Marine Tier 2 per 40 CFR 94 and conforms with the NOx requirements of the International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13 as applicable.

**RATED POWER OUTPUT CURVE**



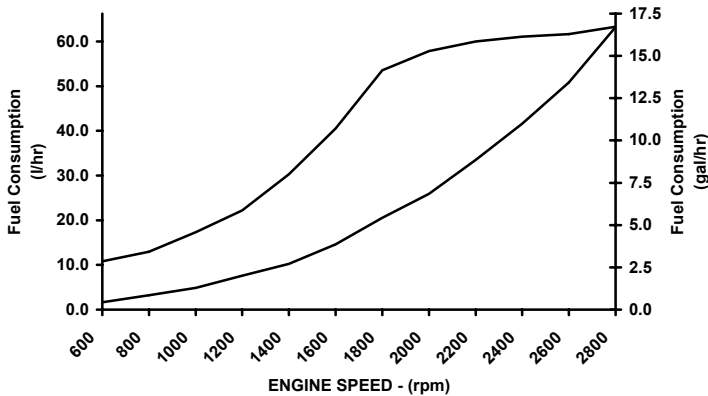
rpm	kW	bhp
2800	243	325
2600	238	319
2400	240	321
2200	238	320
2000	230	309
1800	212	284
1600	157	210
1400	113	151
1200	81	109
1000	60	80
800	43	58
600	30	40

**FULL LOAD TORQUE CURVE**



rpm	N-m	ft-lb
2800	827	610
2600	874	645
2400	953	703
2200	1034	763
2000	1100	811
1800	1125	830
1600	936	690
1400	769	567
1200	648	478
1000	571	421
800	518	382
600	479	353

**FUEL CONSUMPTION - PROP CURVE**



rpm	l/hr	gal/hr
2800	63.3	16.7
2600	50.8	13.4
2400	41.6	11.0
2200	33.5	8.9
2000	26.0	6.9
1800	20.5	5.4
1600	14.6	3.9
1400	10.3	2.7
1200	7.6	2.0
1000	4.9	1.3
800	3.2	0.9
600	1.6	0.4

Rated Conditions: Ratings are based upon ISO 8665 and SAE J1228 reference conditions; air pressure of 100 kPa [29.612 in Hg], air temperature 25 deg. C [77 deg. F] and 30% relative humidity. Power is in accordance with IMCI procedure. Member NMMA.

Rated Curves (upper) represents rated power at the crankshaft for mature gross engine performance capabilities obtained and corrected in accordance with ISO 3046. Propeller Curve (lower) is based on a typical fixed propeller demand curve using a 2.7 exponent. 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].

**High Output Rating:** This Rating is for use in variable load applications where full power is limited to one (1) hour out of every eight (8) hours of operation. Also, reduced power operations must be at or below 200 RPM of the maximum rated RPM. This rating is for pleasure/non-revenue generating applications that operate 500 hours per year.

*James D. Kahlert*

CHIEF ENGINEER

# Marine Engine Performance Data

**Curve No.: M-91366**  
**DS-3075**  
**DATE: 15May06**

## General Engine Data

Engine Model.....	QSB5.9-330 HO
Rating Type .....	High Output
Rated Engine Power..... kW [bhp]	243 [325]
Rated Engine Speed..... rpm	2800
Rated HP Production Tolerance .....	±% 5
Rated Engine Torque.....N•m [ft•lb]	827 [610]
Peak Engine Torque @ 2000 rpm .....	N•m [ft•lb] 1125 [830]
Brake Mean Effective Pressure .....	kPa [psi] 1765 [256]
Indicated Mean Effective Pressure .....	kPa [psi] N/A
Minimum Idle Speed Setting..... rpm	600
Normal Idle Speed Variation.....	±rpm 10
High Idle Speed Range	
Minimum .....	rpm 2865
Maximum .....	rpm 2885
Maximum Allowable Engine Speed .....	rpm 2885
Maximum Torque Capacity from Front of Crank <sup>2</sup> .....	N•m [ft•lb] 400 [295]
Compression Ratio .....	17.2:1
Piston Speed .....	m/sec [ft/min] 11.2 [2203]
Firing Order.....	1-5-3-6-2-4
Weight (Dry) Engine only - Average.....	kg [lb] N.A.
Weight (Dry) Engine With Heat Exchanger System - Average.....	kg [lb] 612 [1350]
Weight Tolerance (Dry) Engine only - Average.....	kg [lb] N.A.

## Noise and Vibration

Average Noise Level – Top	(Idle).....	dBa @ 1m	76
	(Rated).....	dBa @ 1m	99
Average Noise Level – Right Side	(Idle).....	dBa @ 1m	76
	(Rated).....	dBa @ 1m	99
Average Noise Level – Left Side	(Idle).....	dBa @ 1m	77
	(Rated).....	dBa @ 1m	111
Average Noise Level – Front	(Idle).....	dBa @ 1m	76
	(Rated).....	dBa @ 1m	99

## Fuel System<sup>1</sup>

Average Fuel Consumption – ISO 8178 E3Standard Test Cycle.....	l/hr [gal/hr]	42.7 [11.3]
Fuel Consumption @ Rated Speed.....	l/hr [gal/hr]	63 [17]
Approximate Fuel Flow to Pump.....	l/hr [gal/hr]	189 [50]
Maximum Allowable Fuel Supply to Pump Temperature.....	°C [°F]	60 [140]
Approximate Fuel Flow Return to Tank.....	l/hr [gal/hr]	126 [33]
Approximate Fuel Return to Tank Temperature .....	°C [°F]	66 [150]
Maximum Heat Rejection to Drain Fuel <sup>5</sup> .....	kW [Btu/min]	2 [94]
Fuel Transfer Pump Pressure Range.....	kPa [psi]	76 [11]
Fuel Rail Pressure	Gauge.....	kPa [psi] N.A.
	INSITE.....	kPa [psi] 139,998 [20,305]

## Air System<sup>1</sup>

Intake Manifold Pressure .....	kPa [in Hg]	190 [56]
Intake Air Flow.....	l/sec [cfm]	306 [649]
Heat Rejection to Ambient .....	kW [Btu/min]	39 [2220]

## Exhaust System<sup>1</sup>

Exhaust Gas Flow.....	l/sec [cfm]	662 [1402]
Exhaust Gas Temperature	Turbine Out.....	°C [°F] 418 [783]
	Manifold .....	°C [°F] 567 [1051]

TBD = To Be Decided

N/A = Not Applicable

N.A. = Not Available

<sup>1</sup>All Data at Rated Conditions

<sup>2</sup>Consult Installation Direction Booklet for Limitations

<sup>3</sup>Heat rejection 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.

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

<sup>5</sup>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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# Marine Engine Performance Data

**Curve No.: M-91366**  
**DS-3075**  
**DATE: 15May06**

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

NOx (Oxides of Nitrogen) .....	g/kw-hr [g/hp-hr]	6.156 [4.591]
HC (Hydrocarbons).....	g/kw-hr [g/hp-hr]	0.098 [0.073]
CO (Carbon Monoxide).....	g/kw-hr [g/hp-hr]	0.265 [0.198]
PM (Particulate Matter).....	g/kw-hr [g/hp-hr]	0.109 [0.081]

**Cooling System<sup>1</sup>**

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]	250 [66]
Standard Thermostat Operating Range	Start to Open.....	74 [165]
	Full Open .....	85 [185]
Heat Rejection to Engine Coolant <sup>3</sup> .....	kW [Btu/min]	181 [10280]

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