



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

Basic Engine Model:  
**QSB5.9-380 HO**  
 Engine Configuration:  
**D403075MX03**

Curve Number:  
**M-91364**

CPL Code	Date:
8464	15-Oct-04

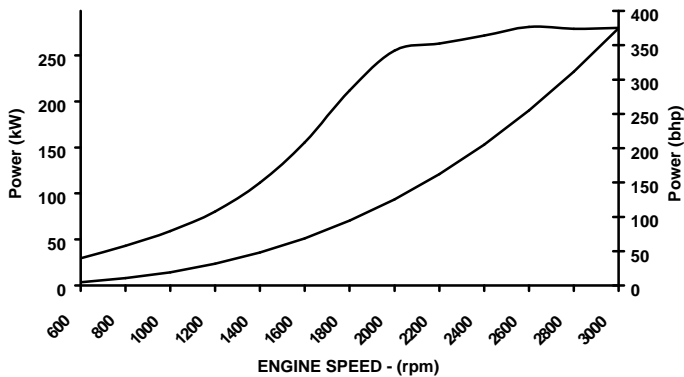
Displacement: **5.9 liter** [359 in<sup>3</sup>]  
 Bore: **102 mm** [4.02 in]  
 Stroke: **120 mm** [4.72 in]  
 Fuel System: **HPCR**  
 Cylinders: **6**

Advertised Power: **280 [375, 380] @ 3000**  
 kW [bhp, mhp] @ rpm

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

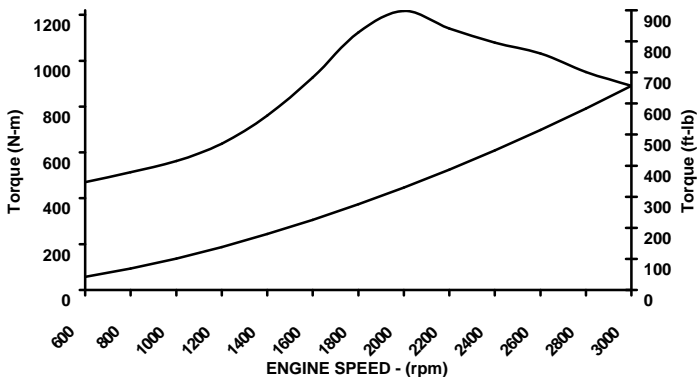
CERTIFIED: This marine diesel engine conforms with the NOx requirements of the International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13 as applicable.

**RATED POWER OUTPUT CURVE**



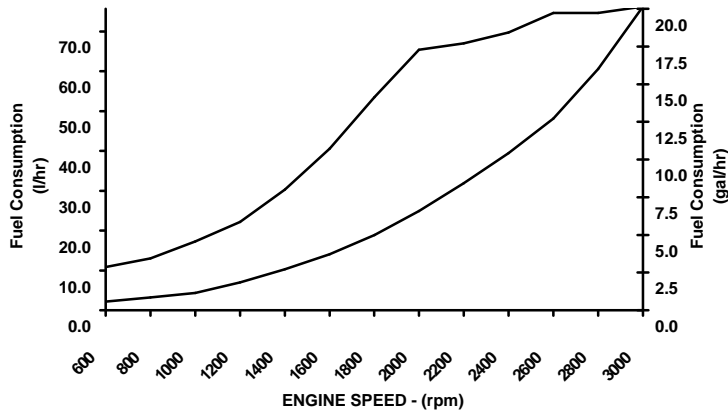
rpm	kW	bhp
3000	280	375
2800	279	374
2600	281	377
2400	271	364
2200	263	352
2000	255	342
1800	212	284
1600	155	208
1400	112	150
1200	80	108
1000	59	79
800	43	58
600	30	40

**FULL LOAD TORQUE CURVE**



rpm	N-m	ft-lb
3000	891	657
2800	950	701
2600	1032	761
2400	1079	796
2200	1140	841
2000	1218	898
1800	1124	829
1600	927	684
1400	761	561
1200	639	471
1000	563	415
800	514	379
600	470	347

**FUEL CONSUMPTION - PROP CURVE**



rpm	l/hr	gal/hr
3000	76.2	20.1
2800	60.6	16.0
2600	48.1	12.7
2400	39.5	10.4
2200	31.9	8.4
2000	24.9	6.6
1800	18.9	5.0
1600	14.1	3.7
1400	10.3	2.7
1200	7.0	1.9
1000	4.3	1.1
800	3.2	0.9
600	2.2	0.6

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 300 hours per year.

*[Signature]*  
 CHIEF ENGINEER

# Marine Engine Performance Data

**Curve No.: M-91364**  
**DS-3075**  
**DATE: 15Oct04**

## General Engine Data

Engine Model.....	QSB5.9-380 HO
Rating Type .....	High Output
Rated Engine Power..... kW [bhp]	280 [375]
Rated Engine Speed..... rpm	3000
Rated HP Production Tolerance .....	±% 5
Rated Engine Torque.....N•m [ft•lb]	890 [657]
Peak Engine Torque @ 2000 rpm .....	N•m [ft•lb] 1218 [898]
Brake Mean Effective Pressure .....	kPa [psi] 1901 [276]
Indicated Mean Effective Pressure .....	kPa [psi] N/A
Minimum Idle Speed Setting..... rpm	600
Normal Idle Speed Variation.....	±rpm 10
High Idle Speed Range	rpm 3065
Minimum .....	rpm 3085
Maximum .....	rpm 3085
Maximum Allowable Engine Speed .....	rpm 3085
Maximum Torque Capacity from Front of Crank <sup>2</sup> .....	N•m [ft•lb] 271 [200]
Compression Ratio .....	17.2:1
Piston Speed .....	m/sec [ft/min] 12 [2360]
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	74
	(Rated).....	dBa @ 1m	N.A.
Average Noise Level – Right Side	(Idle).....	dBa @ 1m	74
	(Rated).....	dBa @ 1m	N.A.
Average Noise Level – Left Side	(Idle).....	dBa @ 1m	74
	(Rated).....	dBa @ 1m	N.A.
Average Noise Level – Front	(Idle).....	dBa @ 1m	74
	(Rated).....	dBa @ 1m	N.A.

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

Average Fuel Consumption – ISO 8178 E3Standard Test Cycle.....	l/hr [gal/hr]	49.7 [13.1]
Fuel Consumption @ Rated Speed.....	l/hr [gal/hr]	76 [20]
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]	113 [30]
Approximate Fuel Return to Tank Temperature .....	°C [°F]	66 [150]
Maximum Heat Rejection to Drain Fuel <sup>5</sup> .....	kW [Btu/min]	1 [84]
Fuel Transfer Pump Pressure Range.....	kPa [psi]	76 [11]
Fuel Rail Pressure	Gauge.....	kPa [psi] N.A.
	INSITE.....	kPa [psi] 143,997 [20,885]

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

Intake Manifold Pressure .....	kPa [in Hg]	214 [63]
Intake Air Flow.....	l/sec [cfm]	342 [724]
Heat Rejection to Ambient .....	kW [Btu/min]	49 [2770]
Maximum Air Cleaner Inlet Temperature Rise Over Ambient.....	°C [°F]	17 [30]

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

Exhaust Gas Flow.....	l/sec [cfm]	791 [1677]
Exhaust Gas Temperature	Turbine Out.....	°C [°F] 460 [859]
	Manifold .....	°C [°F] 628 [1162]

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.

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 COLUMBUS, INDIANA

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<http://www.cummins.com>

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

NOx (Oxides of Nitrogen) .....	g/kw-hr [g/hp-hr]	6.345 [4.731]
HC (Hydrocarbons).....	g/kw-hr [g/hp-hr]	0.100 [0.075]
CO (Carbon Monoxide).....	g/kw-hr [g/hp-hr]	0.342 [0.255]
PM (Particulate Matter).....	g/kw-hr [g/hp-hr]	0.101 [0.075]

**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 with Standard Aftercooling**

Coolant Flow to Engine Heat Exchanger/Keel Cooler .....	l/min [gal/min]	254 [67]
Standard Thermostat Operating Range Start to Open.....	°C [°F]	74 [165]
Full Open .....	°C [°F]	85 [185]
Heat Rejection to Engine Coolant <sup>3</sup> .....	kW [Btu/min]	221 [12570]

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