



CUMMINS MERCUISER DIESEL
Charleston, SC 29405
Marine Performance Curves

Basic Engine Model
QSB5.9-480 HO

Curve Number:
M-92132

Engine Configuration
D403075MX03

CPL Code:
1860

Date:
1-Nov-07

Displacement: **5.9 liter [359 in³]**
 Bore: **102 mm [4.02 in]**
 Stroke: **120 mm [4.72 in]**
 Fuel System: **HPCR**
 Cylinders: **6**

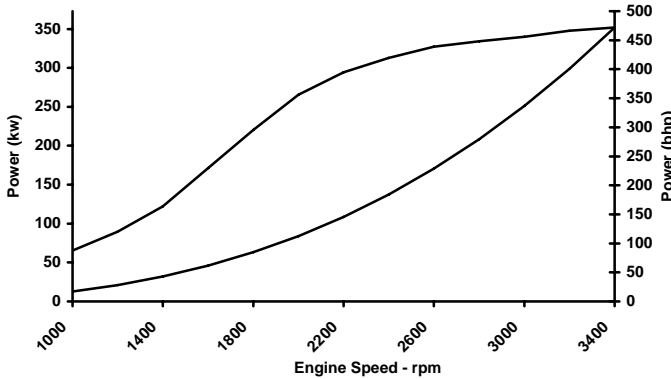
kW [bhp, mhp] @ rpm
 Advertised Power: **352 [472, 480] @ 3400**

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

CERTIFIED: This marine diesel engine complies with or is certified to the:

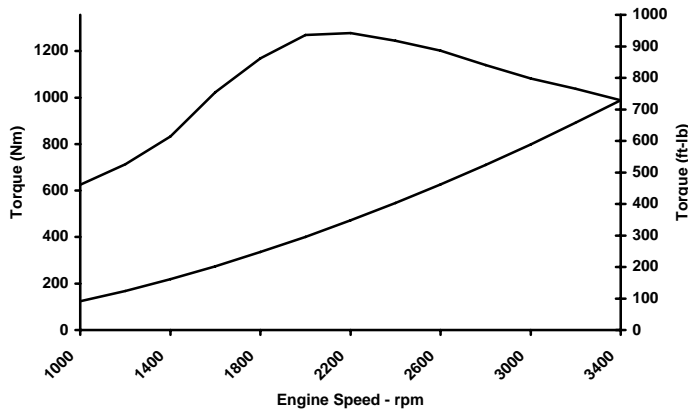
IMO - NOx requirements of the International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13
 EPA Tier 2 - Model year requirements of the EPA marine regulation (40CFR94)

RATED POWER OUTPUT CURVE



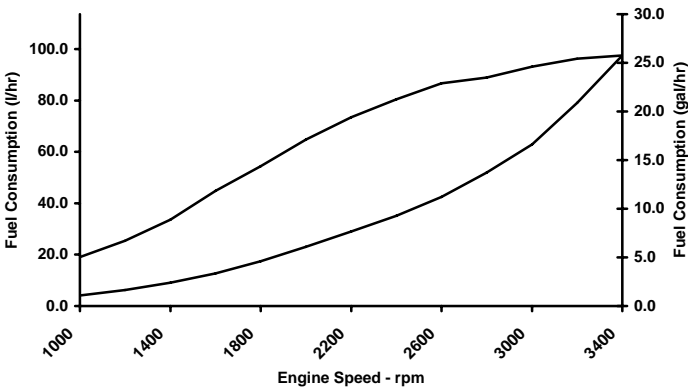
rpm	kw	bhp
3400	352	472
3200	348	466
3000	340	456
2800	334	448
2600	327	439
2400	313	420
2200	294	395
2000	266	356
1800	220	295
1600	171	230
1400	122	164
1200	90	120
1000	65	88

FULL LOAD TORQUE CURVE



rpm	N-m	ft-lb
3400	988	729
3200	1037	765
3000	1082	798
2800	1140	841
2600	1202	887
2400	1245	918
2200	1278	942
2000	1269	936
1800	1169	862
1600	1023	755
1400	833	614
1200	714	526
1000	625	461

FUEL CONSUMPTION - PROP CURVE



rpm	l/hr	gal/hr
3400	97.4	25.7
3200	79.1	20.9
3000	62.8	16.6
2800	52.0	13.7
2600	42.5	11.2
2400	35.2	9.3
2200	29.0	7.7
2000	23.0	6.1
1800	17.5	4.6
1600	12.8	3.4
1400	9.1	2.4
1200	6.2	1.6
1000	4.1	1.1

Rated Conditions: Ratings are based upon ISO 8665 and SAE J1228 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.

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 (HO) Intended 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 must be at or below 200 rpm of the maximum rated rpm. This power rating is for pleasure/non-revenue generating applications that operate 500 hours per year or less.

James D. Kahl

CHIEF ENGINEER

Propulsion Marine Engine Performance Data

Curve No. M-92132
DS : 4960
CPL : 1860
DATE: 1-Nov-07

General Engine Data

Engine Model	QSB5.9-480 HO	
Rating Type	High Output	
Rated Engine Power	kW [hp]	352 [472]
Rated Engine Speed.....	rpm	3400
Rated Power Production Tolerance	±%	5
Rated Engine Torque	N·m [lb·ft]	988 [729]
Peak Engine Torque @ 2200 rpm	N·m [lb·ft]	1277 [942]
Brake Mean Effective Pressure	kPa [psi]	2111 [306]
Minimum Idle Speed Setting	rpm	600
Normal Idle Speed Variation	rpm	10
High Idle Speed Range Minimum	rpm	3465
Maximum	rpm	3485
Maximum Allowable Engine Speed	rpm	3485
Maximum Torque Capacity from Front of Crank ²	N·m [lb·ft]	0 [0]
Compression Ratio		16.7:1
Piston Speed	m/sec [ft/min]	13.6 [2677]
Firing Order		1-5-3-6-2-4
Weight (Dry) - Engine With Heat Exchanger System - Average.....	kg [lb]	658 [1450]

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	101
Average Noise Level - Left Side	(Idle)..	dBA @ 1m	77
	(Rated)	dBA @ 1m	107
Average Noise Level - Front	(Idle)..	dBA @ 1m	76
	(Rated)	dBA @ 1m	100

Fuel System¹

Avg. Fuel Consumption - ISO 8178 E5 Standard Test Cycle	l/hr [gal/hr]	32.8 [9]
Fuel Consumption at Rated Speed	l/hr [gal/hr]	97.4 [26]
Approximate Fuel Flow to Pump	l/hr [gal/hr]	189.3 [50]
Maximum Allowable Fuel Supply to Pump Temperature	°C [°F]	60.0 [140]
Approximate Fuel Flow Return to Tank	l/hr [gal/hr]	91.8 [24]
Approximate Fuel Return to Tank Temperature	°C [°F]	71.2 [160]
Maximum Heat Rejection to Drain Fuel	kW [Btu/min]	1.5 [83]
Fuel Transfer Pump Pressure Range.....	kPa [psi]	75.8 [11]
Fuel Pressure - Pump Out/Rail . INSITE Reading	kPa [psi]	150002 [21756]

Air System¹

Intake Manifold Pressure	kPa [in Hg]	240 [71]
Intake Air Flow	l/sec [cfm]	440 [932]
Heat Rejection to Ambient	kW [Btu/min]	80 [4528]

TBD= To Be Determined

N/A = Not Applicable

N.A. = Not Available

¹ All Data at Rated Conditions.

² 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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<http://www.cummins.com>

Propulsion Marine Engine Performance Data

Curve No. M-92132
 DS : 4960
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Exhaust System¹

Exhaust Gas Flow	l/sec [cfm]	1026 [2174]
Exhaust Gas Temperature (Turbine Out)	°C [°F]	497 [925]
Exhaust Gas Temperature (Manifold)	°C [°F]	706 [1301]

Emissions (in accordance with ISO 8178 Cycle E5)

NOx (Oxides of Nitrogen)	g/kw-hr [g/hp-hr]	5.37 [4.002]
HC (Hydrocarbons)	g/kw-hr [g/hp-hr]	0.28 [0.207]
CO (Carbon Monoxide)	g/kw-hr [g/hp-hr]	1.20 [0.895]
PM (Particulate Matter)	g/kw-hr [g/hp-hr]	0.10 [0.076]

Cooling System¹

Sea Water After Cooled Engine

Sea Water Pump Specifications	MAB 0.08.17-07/16/2001	
Pressure Cap Rating.....	kPa [psi]	103 [15]
Thermostat Operating Range (Start to Open).....	°C [°F]	74 [165]
Thermostat Operating Range(Full Open).....	°C [°F]	85 [185]

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