



CUMMINS MERCURISER DIESEL
Charleston, SC 29405
Marine Performance Curves

Basic Engine Model:

QSB5.9-380 GS

Engine Configuration:

D403075MX03

Curve Number:

M-91395

CPL Code

8464

Date:

15-Oct-04

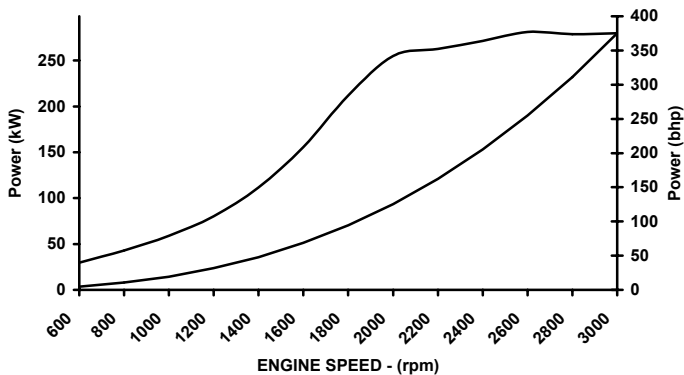
Displacement: **5.9 liter** [359 in³]
 Bore: **102 mm** [4.02 in]
 Stroke: **120 mm** [4.72 in]
 Fuel System: **HPCR**
 Cylinders: **6**

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

Aspiration: **Turbocharged / Sea Water Aftercooled**
 Rating Type: **Government Service**

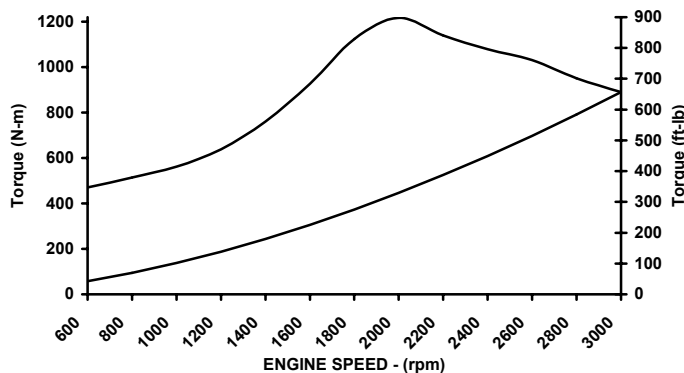
CERTIFIED: This marine diesel engine is certified to the model year requirements of EPA Marine Tier 2 per 40 CFR 94 and conforms with the NOx requirements of the International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13 as applicable.

RATED POWER OUTPUT CURVE



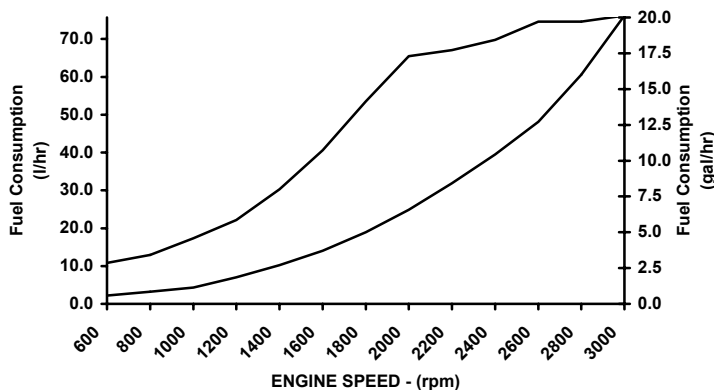
rpm	kW	bhp
3000	280	375
2800	279	374
2600	281	377
2400	271	364
2200	263	352
2000	255	342
1800	212	284
1600	155	208
1400	112	150
1200	80	108
1000	59	79
800	43	58
600	30	40

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].

Government Service (GS): Intended for use in variable load applications where full power is limited to (1) one hour out of every (8) eight hours of operation. Also reduced power operations must be at or below 200 RPM of the maximum rated RPM. This power rating is only for use in National, State or Local government non-revenue producing applications.

CHIEF ENGINEER

Marine Engine Performance Data

Curve No.: M-91395
DS-3075
DATE: 15Oct04

General Engine Data

Engine Model.....	QSB5.9-380 GS
Rating Type	Government Service
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 Minimum	rpm 3065
Maximum	rpm 3085
Maximum Allowable Engine Speed	rpm 3085
Maximum Torque Capacity from Front of Crank ²	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	TBD
Average Noise Level – Right Side	(Idle).....	dBa @ 1m	74
	(Rated).....	dBa @ 1m	TBD
Average Noise Level – Left Side	(Idle).....	dBa @ 1m	74
	(Rated).....	dBa @ 1m	TBD
Average Noise Level – Front	(Idle).....	dBa @ 1m	74
	(Rated).....	dBa @ 1m	TBD

Fuel System¹

Average Fuel Consumption – ISO 8178 E3 Standard 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 ⁵	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 System¹

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 System¹

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

¹All Data at Rated Conditions

²Consult Installation Direction Booklet for Limitations

³Heat 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.

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

⁵May 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>

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DATE: 15Oct04

Emissions (in accordance with ISO 8178 Cycle E3)

NOx (Oxides of Nitrogen)	g/kw-hr [g/hp-hr]	6.345 [4.732]
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 System¹

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 ³	kW [Btu/min]	221 [12570]

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