



CUMMINS MERCUISER DIESEL
 Charleston, SC 29405
Marine Performance Curves

Basic Engine Model
QSC8.3-600 GS

Curve Number:
M-91938

Engine Configuration
D413038MX03

CPL Code:
0906

Date:
12-Aug-08

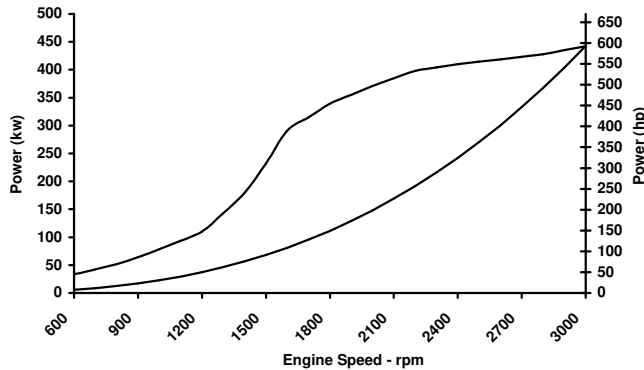
Displacement: **8.3 liter** [505 in³]
 Bore: **114 mm** [4.49 in]
 Stroke: **135 mm** [5.31 in]
 Fuel System: **HPCR**
 Cylinders: **6**

kW [bhp, mhp] @ rpm
 Advertised Power: **442 [593, 600] @ 3000**

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

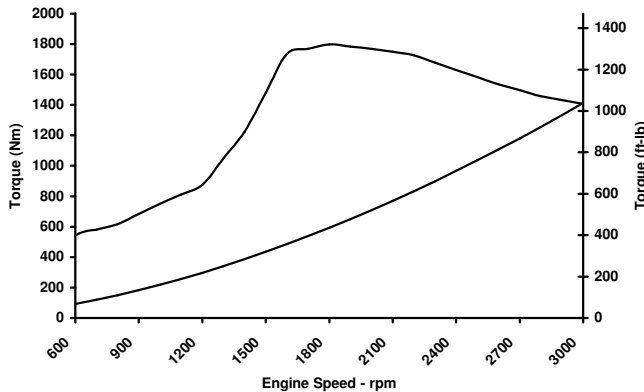
CERTIFIED: This marine diesel engine is certified to the model year requirements of EPA Marine Tier 2 per 40 CFR 94 and conforms with the NOx requirements of the International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13 as applicable.

RATED POWER OUTPUT CURVE



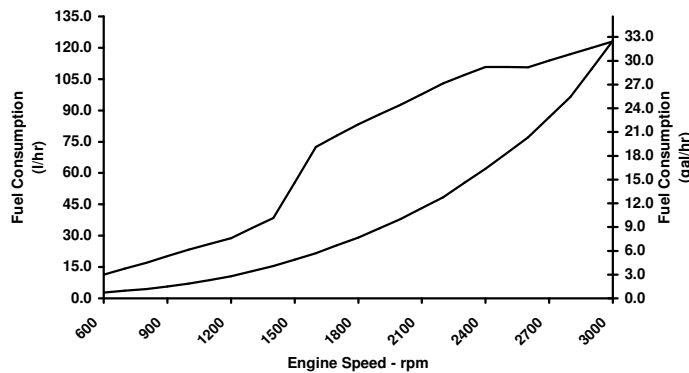
rpm	kW	bhp
3000	442	593
2800	428	573
2600	418	561
2400	410	549
2200	398	534
2000	371	497
1800	339	455
1600	291	390
1400	179	240
1200	110	147
1000	79	105
800	52	69
600	34	46

FULL LOAD TORQUE CURVE



rpm	N-m	ft-lb
3000	1407	1038
2800	1457	1075
2600	1536	1133
2400	1630	1202
2200	1727	1274
2000	1769	1305
1800	1799	1327
1600	1735	1280
1400	1223	902
1200	874	645
1000	750	553
800	617	455
600	542	400

FUEL CONSUMPTION - PROP CURVE



rpm	l/hr	gal/hr
3000	123.1	32.5
2800	96.1	25.4
2600	76.9	20.3
2400	61.9	16.4
2200	48.4	12.8
2000	37.9	10.0
1800	29.0	7.7
1600	21.6	5.7
1400	15.5	4.1
1200	10.5	2.8
1000	7.0	1.8
800	4.4	1.2
600	2.8	0.7

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 3.0 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 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 must be at or below 300 RPM of the maximum rated RPM. This rating is only for use in National, State, or Local government non-revenue producing applications operating less than 500 hours per year.

James D. Kahlert

CHIEF ENGINEER

Propulsion Marine Engine Performance Data

Curve No. M-91938
DS : 3038
CPL : 0906
DATE: 12-Aug-08

General Engine Data

Engine Model	QSC8.3-600 GS
Rating Type	Government Service
Rated Engine Power	442 [593]
Rated Engine Speed	3000
Rated Power Production Tolerance	5
Rated Engine Torque	1407 [1038]
Peak Engine Torque @ 1800 rpm	1799 [1327]
Brake Mean Effective Pressure	2138 [310]
Minimum Idle Speed Setting	600
Normal Idle Speed Variation	10
High Idle Speed Range Minimum	3065
Maximum	3085
Maximum Allowable Engine Speed	3085
Compression Ratio	16.3:1
Piston Speed	13.5 [2657]
Firing Order	1-5-3-6-2-4
Weight (Dry) - Engine With Heat Exchanger System - Average	896 [1975]

Noise and Vibration

Average Noise Level - Top	(Idle)	82
	(Rated)	98
Average Noise Level - Right Side	(Idle)	82
	(Rated)	98
Average Noise Level - Left Side	(Idle)	82
	(Rated)	98
Average Noise Level - Front	(Idle)	82
	(Rated)	98

Fuel System¹

Avg. Fuel Consumption - ISO 8178 E3 Standard Test Cycle	75.5 [20]
Fuel Consumption at Rated Speed	123.1 [33]
Approximate Fuel Flow to Pump	181.7 [48]
Maximum Allowable Fuel Supply to Pump Temperature	71.2 [160]
Approximate Fuel Flow Return to Tank	58.6 [15]
Approximate Fuel Return to Tank Temperature	85.1 [185]
Maximum Heat Rejection to Drain Fuel	1.4 [77]
Fuel Pressure - Pump Out/Rail . INSITE Reading	160000 [23206]

Air System¹

Intake Manifold Pressure	230 [68]
Intake Air Flow	580 [1230]
Heat Rejection to Ambient	118 [6695]

TBD= To Be Determined

N/A = Not Applicable

N.A. = Not Available

- All Data at Rated Conditions.
- Consult Installation Direction Booklet for Limitations.
- 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.
- Consult option notes for flow specifications of optional Cummins seawater pumps, if applicable.
- 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://marine.cummins.com>

Propulsion Marine Engine Performance Data

Curve No. **M-91938**
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Exhaust System¹

Exhaust Gas Flow	l/sec [cfm]	1336 [2830]
Exhaust Gas Temperature (Turbine Out)	°C [°F]	510 [950]
Exhaust Gas Temperature (Manifold)	°C [°F]	705 [1300]

Emissions (in accordance with ISO 8178 Cycle E3)

NOx (Oxides of Nitrogen)	g/kw-hr [g/hp-hr]	5.88 [4.38]
HC (Hydrocarbons)	g/kw-hr [g/hp-hr]	0.13 [0.09]
CO (Carbon Monoxide)	g/kw-hr [g/hp-hr]	0.44 [0.33]
PM (Particulate Matter)	g/kw-hr [g/hp-hr]	0.11 [0.08]

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]	71 [160]
Thermostat Operating Range(Full Open).....	°C [°F]	81 [178]

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