



CUMMINS MERCURISER DIESEL
 Charleston, SC 29405
 Marine Performance Curves

Basic Engine Model:
QSL9 - 285 CON
 Engine Configuration:
D563005MX03

Curve Number:
M-91392

CPL Code
8419

Date:
3-Jan-07

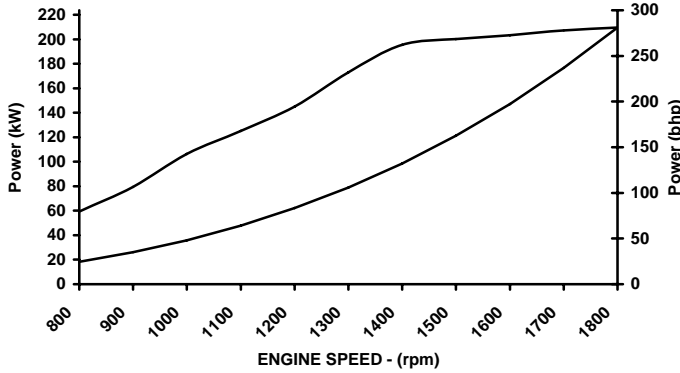
Displacement: **8.9 liter** [542 in³]
 Bore: **114 mm** [4.49 in]
 Stroke: **145 mm** [5.71 in]
 Fuel System: **HPCR**
 Cylinders: **6**

Advertised Power: **209 [281, 285] @ 1800**
 kW [bhp, mhp] @ rpm

Aspiration: **Turbocharged / Sea Water Aftercooled**
 Rating Type: **Continuous Duty**

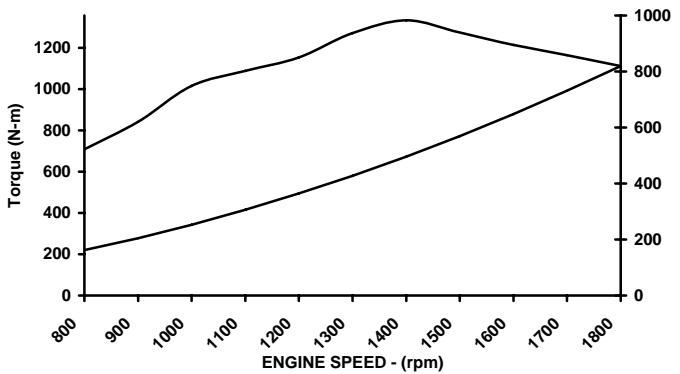
CERTIFIED: This marine diesel engine is certified to the model year requirements of EPA Marine Tier 2 per 40 CFR 94 and conforms with the NOx requirements of the International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13 as applicable.

RATED POWER OUTPUT CURVE



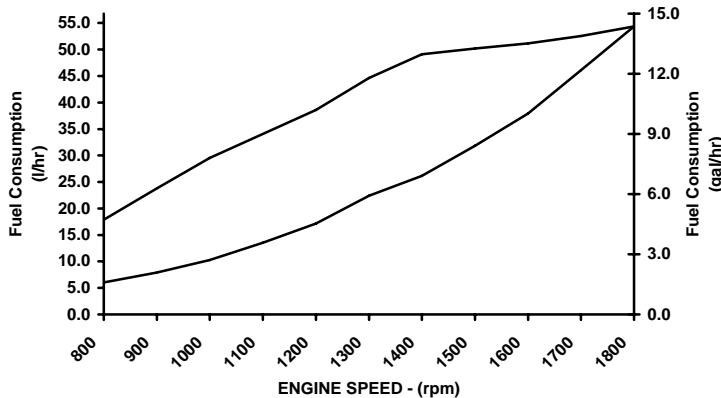
rpm	kW	bhp
1800	210	281
1700	207	278
1600	203	273
1500	200	268
1400	195	262
1300	173	232
1200	145	194
1100	125	168
1000	106	143
900	79	106
800	59	80

FULL LOAD TORQUE CURVE



rpm	N-m	ft-lb
1800	1111	820
1700	1164	858
1600	1213	895
1500	1274	940
1400	1332	983
1300	1270	937
1200	1153	850
1100	1087	802
1000	1015	749
900	842	621
800	708	522

FUEL CONSUMPTION - PROP CURVE



rpm	l/hr	gal/hr
1800	54.3	14.4
1700	46.1	12.2
1600	37.9	10.0
1500	31.8	8.4
1400	26.2	6.9
1300	22.4	5.9
1200	17.1	4.5
1100	13.5	3.6
1000	10.3	2.7
900	7.9	2.1
800	6.0	1.6

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 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].

Continuous Duty (CON) Intended for continuous use in applications requiring uninterrupted service at full power. This rating is an ISO 3046 standard power rating.

James D. Kelleher

CHIEF ENGINEER

Marine Engine Performance Data

Curve No.: M-91392
DS-3038
DATE: 03Jan07

General Engine Data

Engine Model.....		QSL9 – 285 CON
Rating Type		Continuous Duty
Rated Engine Power..... kW [bhp]		210 [281]
Rated Engine Speed..... rpm		1800
Rated HP Production Tolerance	±%	5
Rated Engine Torque.....	N•m [ft•lb]	1112 [820]
Peak Engine Torque @ 1400 rpm	N•m [ft•lb]	1333 [983]
Brake Mean Effective Pressure	kPa [psi]	1573 [228]
Indicated Mean Effective Pressure	kPa [psi]	1764 [256]
Minimum Idle Speed Setting.....	rpm	600
Normal Idle Speed Variation.....	±rpm	10
High Idle Speed Range		
Minimum	rpm	1865
Maximum	rpm	1885
Maximum Allowable Engine Speed	rpm	1885
Maximum Torque Capacity from Front of Crank ²	N•m [ft•lb]	705 [520]
Compression Ratio		16.6:1
Piston Speed	m/sec [ft/min]	8.7 [1713]
Firing Order.....		1-5-3-6-2-4
Weight (Dry) Engine only - Average.....	kg [lb]	901 [1987]
Weight (Dry) Engine With Heat Exchanger System - Average.....	kg [lb]	977 [2153]
Weight Tolerance (Dry) Engine only - Average.....	kg [lb]	N.A.

Noise and Vibration

Average Noise Level – Top	(Idle).....	dBA @ 1m	84
	(Rated).....	dBA @ 1m	96
Average Noise Level – Right Side	(Idle).....	dBA @ 1m	84
	(Rated).....	dBA @ 1m	96
Average Noise Level – Left Side	(Idle).....	dBA @ 1m	84
	(Rated).....	dBA @ 1m	96
Average Noise Level – Front	(Idle).....	dBA @ 1m	84
	(Rated).....	dBA @ 1m	96

Fuel System¹

Average Fuel Consumption – ISO 8178 E3Standard Test Cycle.....		l/hr [gal/hr]	36.94 [9.8]
Fuel Consumption @ Rated Speed.....		l/hr [gal/hr]	54 [14.4]
Approximate Fuel Flow to Pump.....		l/hr [gal/hr]	92 [24]
Maximum Allowable Fuel Supply to Pump Temperature.....		°C [°F]	60 [140]
Approximate Fuel Flow Return to Tank		l/hr [gal/hr]	38 [10]
Approximate Fuel Return to Tank Temperature	Without Cooler.....	°C [°F]	85.1 [185]
	With Cooler.....	°C [°F]	40 [104]
Maximum Heat Rejection to Drain Fuel ⁵		kW [Btu/min]	1 [50]
Fuel Transfer Pump Pressure Range.....		kPa [psi]	N/A
Fuel Rail Pressure	INSITE.....	kPa [psi]	119,996 [17,404]

Air System¹

Intake Manifold Pressure		kPa [in Hg]	144 [42.5]
Intake Air Flow.....		l/sec [cfm]	278 [588]
Heat Rejection to Ambient		kW [Btu/min]	54 [3050]
Maximum Air Cleaner Inlet Temperature Rise Over Ambient.....		°C [°F]	17 [30]

Exhaust System¹

Exhaust Gas Flow.....		l/sec [cfm]	570 [1208]
Exhaust Gas Temperature	Turbine Out.....	°C [°F]	378 [712]
	Manifold	°C [°F]	495 [922]

BD = 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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Marine Engine Performance Data

Curve No.: M-91392
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DATE: 03Jan07

Emissions (in accordance with ISO 8178 Cycle E3)

NOx (Oxides of Nitrogen)	g/kw-hr [g/hp-hr]	6.36 [4.743]
HC (Hydrocarbons).....	g/kw-hr [g/hp-hr]	0.08 [0.063]
CO (Carbon Monoxide).....	g/kw-hr [g/hp-hr]	0.66 [0.491]
PM (Particulate Matter).....	g/kw-hr [g/hp-hr]	0.10 [0.072]

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 (if applicable)

Coolant Flow to Engine Heat Exchanger/Keel Cooler	l/min [gal/min]	360 [95]
Standard Thermostat Operating Range Start to Open.....	°C [°F]	71 [160]
Full Open	°C [°F]	81 [178]
Heat Rejection to Engine Coolant ³	kW [Btu/min]	154 [8781]

Single Loop Low Temperature Aftercooling

Coolant Flow to LTA Heat Exchanger/Keel Cooler	l/min [gal/min]	152 [40]
LTA Thermostat Operating Range Start to Open.....	°C [°F]	66 [150]
Full Open	°C [°F]	80 [175]
Heat Rejection to LTA Coolant ³	kW [Btu/min]	183 [10397]

TBD = To Be Decided

N/A = Not Applicable

N.A. = Not Available

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