



CUMMINS MERCUISER DIESEL
Charleston, SC 29405
Marine Performance Curves

Basic Engine Model
QSM11-300 CON

Engine Configuration
D353021MX03

Curve Number:
M-20047

CPL Code:
8590

Date:
10-Aug-06

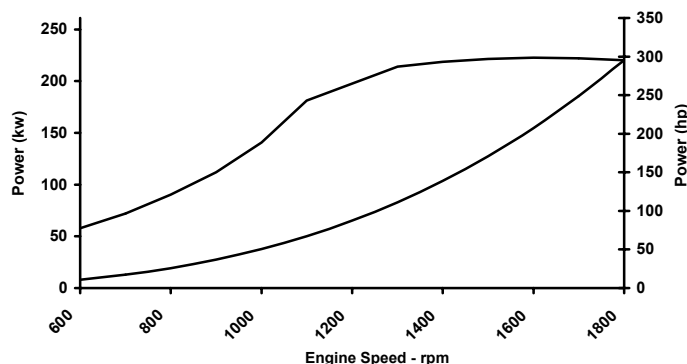
Displacement: **10.8 liter** [660 in³]
Bore: **125 mm** [4.92 in]
Stroke: **147 mm** [5.79 in]
Fuel System: **CELECT**
Cylinders: **6**

kW [bhp, mhp] @ rpm
Advertised Power: **220 [295, 300] @ 1800**

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

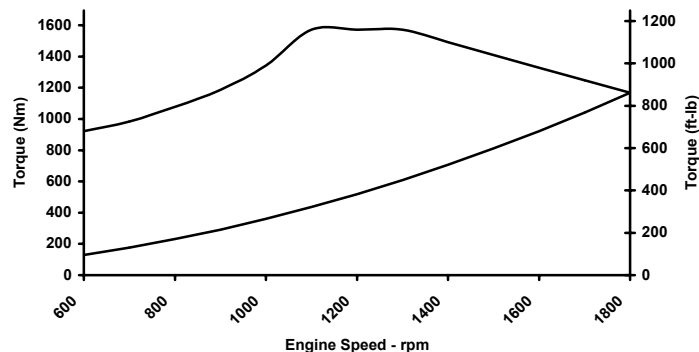
CERTIFIED: This marine diesel engine is certified to the model year requirements of EPA Marine Tier 2 per 40 CFR 94 and conforms with the NOx requirements of the International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13 as applicable.

RATED POWER OUTPUT CURVE



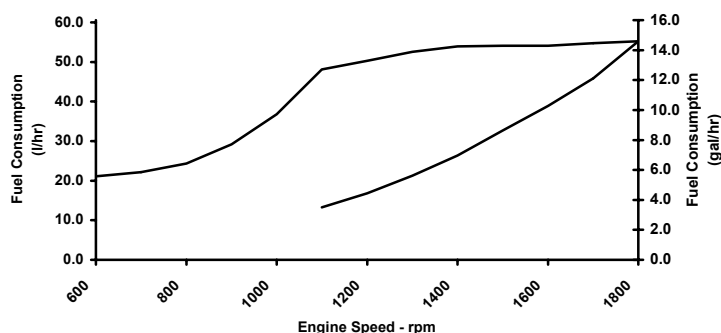
rpm	kW	bhp
1800	220	295
1600	223	299
1400	219	293
1300	214	287
1100	181	243
1000	141	188
900	112	150
800	90	121
700	72	97

FULL LOAD TORQUE CURVE



rpm	N-m	ft-lb
1800	1167	861
1600	1329	980
1400	1491	1100
1300	1573	1160
1100	1573	1160
1000	1342	990
900	1186	875
800	1078	795
700	983	725

FUEL CONSUMPTION - PROP CURVE



rpm	l/hr	gal/hr
1800	55.2	14.6
1700	46.7	12.3
1600	40.3	10.6
1500	34.4	9.1
1400	28.4	7.5
1300	23.4	6.2
1200	19.0	5.0
1100	15.4	4.1

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 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.

CHIEF ENGINEER

Propulsion Marine Engine Performance Data

Curve No. M-20047
DS : 3021
CPL : 8590
DATE: 10-Aug-06

General Engine Data

Engine Model	QSM11-300 CON
Rating Type	Continuous Duty
Rated Engine Power	220 [295]
Rated Engine Speed	1800
Rated Power Production Tolerance	5
Rated Engine Torque	1167 [861]
Peak Engine Torque @ 1300 rpm	1573 [1160]
Brake Mean Effective Pressure	1355 [197]
Indicated Mean Effective Pressure	179 [26]
Minimum Idle Speed Setting	600
Normal Idle Speed Variation	10
High Idle Speed Range Minimum	1840
Maximum	1860
Maximum Allowable Engine Speed	1860
Maximum Torque Capacity from Front of Crank ²	847 [625]
Compression Ratio	15.9:1
Piston Speed	8.8 [1736]
Firing Order	1-5-3-6-2-4
Weight (Dry) - Engine Only - Average	1118 [2464]
Weight (Dry) - Engine With Heat Exchanger System - Average	1184 [2610]
Weight Tolerance (Dry) Engine Only	N.A.

Noise and Vibration

Average Noise Level - Top	(Idle)..	dBa @ 1m	80
	(Rated)	dBa @ 1m	95
Average Noise Level - Right Side	(Idle)..	dBa @ 1m	80
	(Rated)	dBa @ 1m	95
Average Noise Level - Left Side	(Idle)..	dBa @ 1m	80
	(Rated)	dBa @ 1m	95
Average Noise Level - Front	(Idle)..	dBa @ 1m	80
	(Rated)	dBa @ 1m	95

Fuel System¹

Avg. Fuel Consumption - ISO 8178 E3 Standard Test Cycle	l/hr [gal/hr]	39.4 [10]
Fuel Consumption at Rated Speed	l/hr [gal/hr]	55 [14.6]
Approximate Fuel Flow to Pump	l/hr [gal/hr]	219.6 [58]
Maximum Allowable Fuel Supply to Pump Temperature	°C [°F]	60.0 [140]
Approximate Fuel Flow Return to Tank	l/hr [gal/hr]	164.3 [43]
Approximate Fuel Return to Tank Temperature	°C [°F]	71.2 [160]
Maximum Heat Rejection to Drain Fuel	kW [Btu/min]	2.6 [149]
Fuel Transfer Pump Pressure Range	kPa [psi]	N/A [150 - 170]
Fuel Pressure - Pump Out/Rail . Mechanical Gauge	kPa [psi]	1103 [160]
INSITE Reading	kPa [psi]	N.A. [N.A.]

Air System¹

Intake Manifold Pressure	kPa [in Hg]	118 [35]
Intake Air Flow	l/sec [cfm]	288 [611]
Heat Rejection to Ambient	kW [Btu/min]	21 [1172]

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-20047
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Exhaust System¹

Exhaust Gas Flow	l/sec [cfm]	621 [1315]
Exhaust Gas Temperature (Turbine Out)	°C [°F]	385 [725]
Exhaust Gas Temperature (Manifold)	°C [°F]	526 [978]

Emissions (in accordance with ISO 8178 Cycle E3)

NOx (Oxides of Nitrogen)	g/kw-hr [g/hp-hr]	6.28 [4.68]
HC (Hydrocarbons)	g/kw-hr [g/hp-hr]	0.26 [0.19]
CO (Carbon Monoxide)	g/kw-hr [g/hp-hr]	0.58 [0.43]
PM (Particulate Matter)	g/kw-hr [g/hp-hr]	0.17 [0.13]

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]	80 [175]

Engines with Single Loop Keel Cooling

Coolant Flow to Keel Cooler (with blocked open thermostat)	l/min [gal/min]	170 [45]
LTA Thermostat Operating Range (Start to Open)	°C [°F]	66 [150]
LTA Thermostat Operating Range (Full Open)	°C [°F]	80 [175]
Heat Rejection to Engine Coolant ³	kW [Btu/min]	181 [10288]
Maximum Coolant Inlet Temperature from LTA Cooler	°C [°F]	54 [130]

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

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