



CUMMINS MERCURISER DIESEL
Charleston, SC 29405
Marine Performance Curves

Basic Engine Model:
QSC8.3-490 INT
 Engine Configuration:
D413038MX03

Curve Number:
M-91453

CPL Code: **8017** Date: **15-Dec-04**

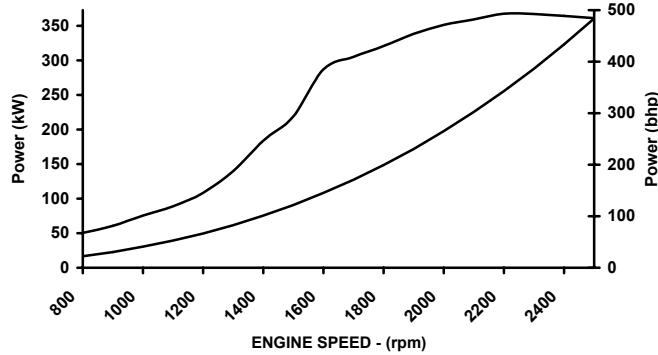
Displacement: **8.3 liter** **[505 in³]**
 Bore: **114 mm** **[4.49 in]**
 Stroke: **135 mm** **[5.31 in]**
 Fuel System: **HPCR**
 Cylinders: **6**

Advertised Power: **361 [484, 490] @ 2500**
 kW [bhp, mhp] @ rpm

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

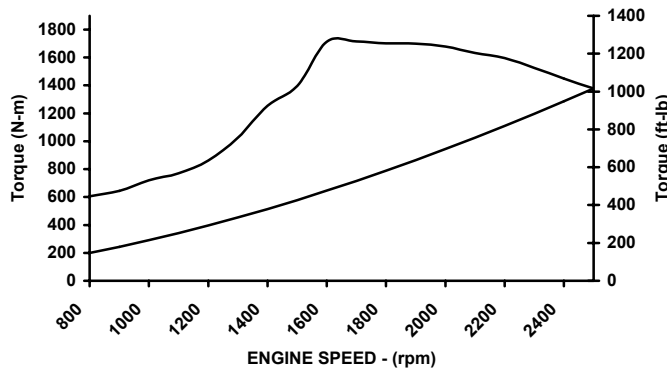
CERTIFIED: This marine diesel engine is certified to the model year requirements of EPA Marine Tier 2 per 40 CFR 94 and conforms with the NOx requirements of the International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13 as applicable.

RATED POWER OUTPUT CURVE



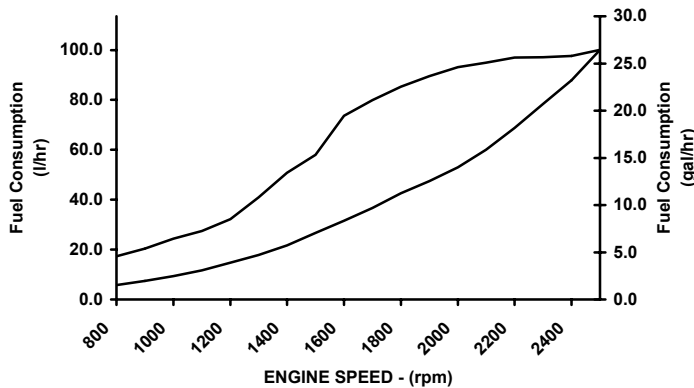
rpm	kW	bhp
2500	361	484
2400	364	488
2200	368	493
2000	352	472
1800	321	430
1600	287	385
1400	184	246
1200	108	145
1000	75	101
800	51	68

FULL LOAD TORQUE CURVE



rpm	N-m	ft-lb
2500	1379	1017
2400	1449	1069
2200	1596	1177
2000	1679	1238
1800	1702	1255
1600	1713	1264
1400	1253	924
1200	863	636
1000	720	531
800	605	446

FUEL CONSUMPTION - PROP CURVE



rpm	l/hr	gal/hr
2500	100.2	26.5
2400	87.9	23.2
2200	68.8	18.2
2000	53.0	14.0
1800	42.7	11.3
1600	31.6	8.4
1400	21.7	5.7
1200	14.7	3.9
1000	9.4	2.5
800	5.7	1.5

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].

Intermittent Rating: This power rating is intended for intermittent use in variable load application where full power is limited to two (2) hours out of every eight (8) hours of operation. Also, reduced power operation must be at or below 200 RPM of the maximum rated RPM. This rating is an ISO 3046 fuel stop power rating and is for application that operate less than 1,500 hours per year.

James D. Kahlisch

CHIEF ENGINEER

Marine Engine Performance Data

Curve No.: M-91453
DS-3038
DATE: 15Dec04

General Engine Data

Engine Model.....		QSC8.3 INT
Rating Type		Intermittent Duty
Rated Engine Power.....	kW [bhp]	361 [484]
Rated Engine Speed.....	rpm	2500
Rated HP Production Tolerance	±%	5
Rated Engine Torque.....	N•m [ft•lb]	1379 [1017]
Peak Engine Torque @ 1700 rpm	N•m [ft•lb]	1715 [1265]
Brake Mean Effective Pressure	kPa [psi]	2095 [304]
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 2565
	Maximum	rpm 2585
Maximum Allowable Engine Speed	rpm	2585
Maximum Torque Capacity from Front of Crank ²	N•m [ft•lb]	271 [200]
Compression Ratio		16.3:1
Piston Speed	m/sec [ft/min]	11.3 [2215]
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]	896 [1975]
Weight Tolerance (Dry) Engine only - Average.....	kg [lb]	N.A.

Noise and Vibration

Average Noise Level – Top	(Idle).....	dBa @ 1m	82
	(Rated).....	dBa @ 1m	98
Average Noise Level – Right Side	(Idle).....	dBa @ 1m	82
	(Rated).....	dBa @ 1m	98
Average Noise Level – Left Side	(Idle).....	dBa @ 1m	82
	(Rated).....	dBa @ 1m	98
Average Noise Level – Front	(Idle).....	dBa @ 1m	82
	(Rated).....	dBa @ 1m	98

Fuel System¹

Average Fuel Consumption – ISO 8178 E3Standard Test Cycle.....	l/hr [gal/hr]	64 [17]
Fuel Consumption @ Rated Speed.....	l/hr [gal/hr]	100.1 [26.5]
Approximate Fuel Flow to Pump.....	l/hr [gal/hr]	151 [40]
Maximum Allowable Fuel Supply to Pump Temperature.....	°C [°F]	71 [160]
Approximate Fuel Flow Return to Tank	l/hr [gal/hr]	51 [14]
Approximate Fuel Return to Tank Temperature	Without Cooler.....	°C [°F] 85 [185]
	With Cooler.....	°C [°F] 40 [104]
Maximum Heat Rejection to Drain Fuel ⁵	kW [Btu/min]	1 [67]
Fuel Transfer Pump Pressure Range.....	kPa [psi]	N.A.
Fuel Rail Pressure	INSITE.....	kPa [psi] 160,000 [23,206]

Air System¹

Intake Manifold Pressure	kPa [in Hg]	202 [59.8]
Intake Air Flow.....	l/sec [cfm]	452 [958]
Heat Rejection to Ambient	kW [Btu/min]	100 [5700]
Maximum Air Cleaner Inlet Temperature Rise Over Ambient.....	°C [°F]	17 [30]

Exhaust System¹

Exhaust Gas Flow.....	l/sec [cfm]	1098 [2326]
Exhaust Gas Temperature	Turbine Out.....	°C [°F] 485 [904]
	Manifold	°C [°F] 679 [1253]

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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<http://www.cummins.com>

Marine Engine Performance Data

Curve No.: M-91453
DS-3038
DATE: 15Dec04

Emissions (in accordance with ISO 8178 Cycle E3)

NOx (Oxides of Nitrogen)	g/kw-hr [g/hp-hr]	5.66 [4.217]
HC (Hydrocarbons).....	g/kw-hr [g/hp-hr]	0.06 [0.0447]
CO (Carbon Monoxide).....	g/kw-hr [g/hp-hr]	0.34 [0.2535]
PM (Particulate Matter).....	g/kw-hr [g/hp-hr]	0.10 [0.0753]

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]	454 [120]
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]	234 [13337]

TBD = To Be Decided

N/A = Not Applicable

N.A. = Not Available

1All Data at Rated Conditions

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