



CUMMINS INC.
Columbus, IN 47201
Marine Performance Curves
marine.cummins.com

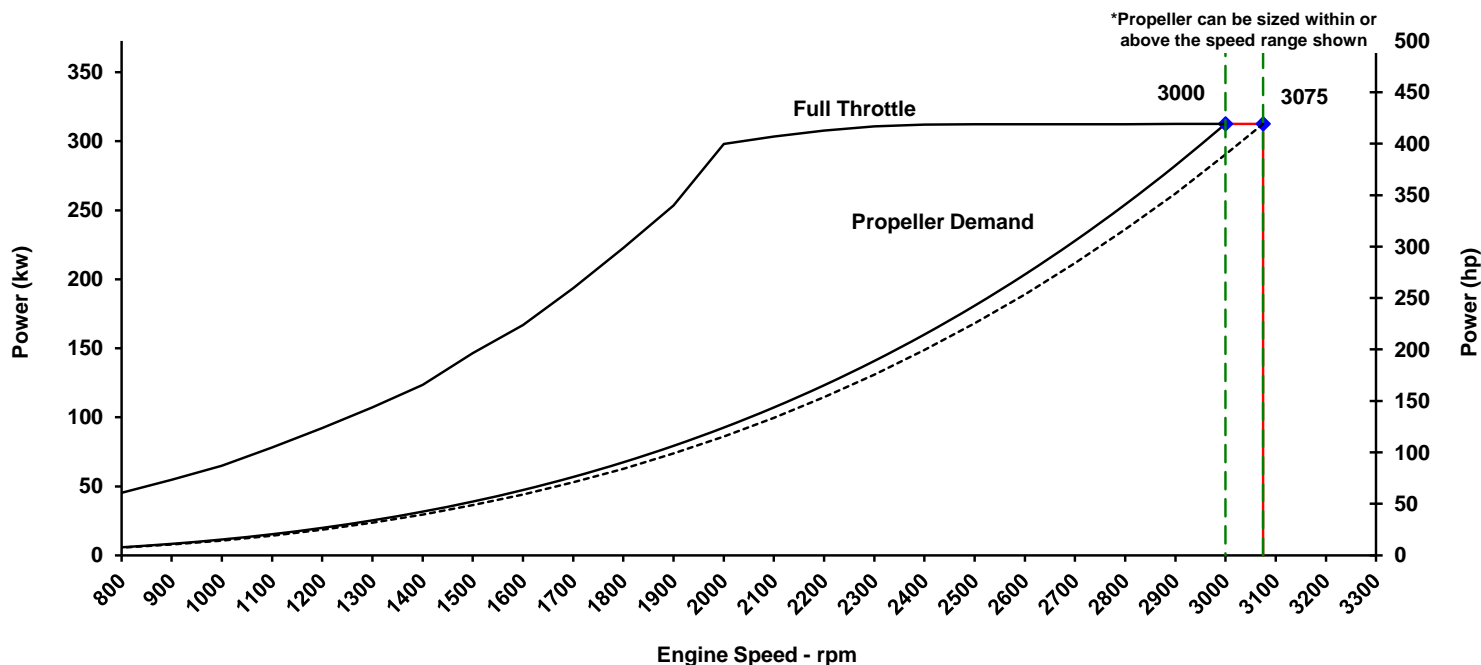
Basic Engine Model
QSB 6.7
Engine Configuration
D313011MX03

Curve Number:
M-94129
CPL Code:
4191
Date:
2-Oct-13

Displacement: **6.7 liter [408 in³]**
Bore: **107 mm [4.21 in]**
Stroke: **124 mm [4.88 in]**
Fuel System: **HPCR Bosch CRIN 3.0**
Cylinders: **6**

Rated Power: **313 kw [419 bhp, 425 mhp]**
Rated Speed: **3000 rpm**
Rating Type: **High Output**
Aspiration: **Turbocharged / Sea Water Aftercooled**

CERTIFIED: This diesel engine complies with or is certified to the following agencies requirements:
EPA Tier 3 - Model year requirements of the EPA marine regulation (40CFR1042)
IMO Tier II (Two) NOx requirements of International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13
RCD - meets the requirements of the Recreational Craft Directive 94/25/EC as amended by 2003/44/EC in accordance with ISO 8178-1



Speed	Full Throttle				Propeller Demand						
	Power		Torque		Power		Torque		Fuel Consumption		
	rpm	kw	(hp)	N·m	(ft·lb)	kw	(hp)	N·m	(ft·lb)	L/hr	(gal/hr)
3075	313	(419)	971	(716)							
3000	313	(419)	995	(734)	313	(419.3)	995	(734.0)	81.1	(21.4)	
2900	313	(419)	1029	(759)	285	(382.6)	939	(692.9)	73.4	(19.4)	
2800	312	(419)	1066	(786)	260	(348.0)	885	(652.8)	66.5	(17.6)	
2700	312	(419)	1105	(815)	235	(315.5)	832	(613.6)	60.4	(15.9)	
2600	312	(419)	1147	(846)	212	(284.9)	780	(575.5)	55.0	(14.5)	
2400	312	(419)	1242	(916)	171	(229.5)	681	(502.3)	43.8	(11.6)	
2200	308	(413)	1335	(985)	135	(181.5)	587	(433.2)	35.1	(9.3)	
2000	298	(400)	1424	(1050)	105	(140.3)	500	(368.4)	27.7	(7.3)	
1800	223	(299)	1181	(871)	79	(105.6)	418	(308.0)	20.9	(5.5)	
1600	167	(224)	995	(734)	57	(76.8)	342	(252.1)	15.1	(4.0)	
1400	124	(166)	843	(622)	40	(53.6)	272	(200.9)	10.8	(2.8)	
1200	92	(124)	733	(541)	26	(35.3)	210	(154.6)	7.5	(2.0)	
1000	65	(87)	620	(457)	16	(21.6)	154	(113.4)	5.2	(1.4)	
800	45	(61)	541	(399)	9	(11.8)	105	(77.6)	3.5	(0.9)	
700	38	(51)	521	(384)	6	(8.2)	84	(61.8)	2.9	(0.8)	
600	31	(42)	500	(369)	4	(5.4)	65	(47.6)	3.1	(0.8)	

- * Cummins Full Throttle Requirements:**
- Engine achieves or exceeds rated rpm at full throttle under any steady operating condition
 - Engine achieves or exceeds rated rpm when accelerating from idle to full throttle

Rated Conditions: Ratings are based upon ISO 15550 reference conditions; air pressure of 100 kPa [29.612 in Hg], air temperature 25deg. C [77 deg. F] and 30% relative humidity. Member NMMA. Unless otherwise specified, tolerance on all values is +/-5%. Values from engine control modules and displayed on instrument panels are not absolute. Tolerance varies, but is generally less than +/-5% when operating within 30% of rated power.

Full Throttle curve represents power at the crankshaft for mature gross engine performance corrected in accordance with ISO 15550. Propeller Curve represents approximate power demand from a typical propeller. 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].

High Output (HO): Intended for use in variable load applications where full power is limited to one hour out of every eight hours of operation. Also, reduced power must be at or below 300 rpm of the maximum rated rpm. This power rating is for pleasure/non-revenue generating applications that operate 500 hours per year or less.

[Signature]
Chief Engineer

Propulsion Marine Engine Performance Data

Curve No. M-94129
 DS: D31-MX-2
 CPL: 4191
 DATE: 2-Oct-13

General Engine Data

Engine Model	QSB 6.7
Rating Type	High Output
Rated Engine Power	313 [419]
Rated Engine Speed	3000
Rated Power Production Tolerance	5
Rated Engine Torque	995 [734]
Peak Engine Torque @ 2000 rpm.....	1424 [1050]
Brake Mean Effective Pressure	1869 [271]
Maximum Allowable Engine Speed	3075
Maximum Torque Capacity from Front of Crank ²	995 [734]
Compression Ratio	16.5:1
Piston Speed	12.4 [2441]
Firing Order	1-5-3-6-2-4
Weight (Dry) - Engine With Heat Exchanger System - Average.....	662 [1460]

Governor Settings

Default Droop Value.....	Refer to MAB 2.04.00-03/23/2006 for Droop explanation	0%
High Speed Governor Break Point.....	rpm	3075
Minimum Idle Speed Setting	rpm	550
Normal Idle Speed Variation	±rpm	10
High Idle Speed Range Minimum	rpm	3070
Maximum	rpm	3080

Noise and Vibration

Average Noise Level - Top	(Idle).....	dBA @ 1m	75
	(Rated)	dBA @ 1m	100
Average Noise Level - Right Side	(Idle).....	dBA @ 1m	75
	(Rated)	dBA @ 1m	100
Average Noise Level - Left Side	(Idle).....	dBA @ 1m	76
	(Rated)	dBA @ 1m	102
Average Noise Level - Front	(Idle).....	dBA @ 1m	76
	(Rated)	dBA @ 1m	101

Fuel System¹

Avg. Fuel Consumption - ISO 8178 E3 Standard Test Cycle	l/hr [gal/hr]	55.0 [14.5]
Avg. Fuel Consumption - ISO 8178 E5 Standard Test Cycle	l/hr [gal/hr]	27.8 [7.3]
Fuel Consumption at Rated Speed	l/hr [gal/hr]	81.1 [21.4]
Approximate Fuel Flow to Pump	l/hr [gal/hr]	215.8 [57.0]
Maximum Allowable Fuel Supply to Pump Temperature	°C [°F]	60.0 [140]
Approximate Fuel Flow Return to Tank	l/hr [gal/hr]	134.7 [35.6]
Approximate Fuel Return to Tank Temperature	°C [°F]	79.5 [175]
Maximum Heat Rejection to Drain Fuel	kW [Btu/min]	2.7 [155]

TBD= To Be Determined

N/A = Not Applicable

N.A. = Not Available

¹ Unless otherwise specified, all data is at rated power conditions and can vary ± 5%.

² No rear loads can be applied when the FPTO is fully loaded. Max PTO torque is contingent on torsional analysis results for the specific drive system. 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.

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 DS: D31-MX-2
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Air System¹

Intake Manifold Pressure	kPa [in Hg]	237 [70]
Intake Air Flow	l/sec [cfm]	442 [936]
Heat Rejection to Ambient	kW [Btu/min]	25 [1396]

Exhaust System¹

Exhaust Gas Flow	l/sec [cfm]	871 [1,845]
Exhaust Gas Temperature (Turbine Out)	°C [°F]	399 [750]
Exhaust Gas Temperature (Manifold)	°C [°F]	588 [1,090]

Emissions (in accordance with ISO 8178 Cycle E3)

NO _x (Oxides of Nitrogen)	g/kw-hr [g/hp-hr]	4.90 [3.65]
HC (Hydrocarbons)	g/kw-hr [g/hp-hr]	0.12 [0.09]
CO (Carbon Monoxide)	g/kw-hr [g/hp-hr]	0.35 [0.26]
PM (Particulate Matter)	g/kw-hr [g/hp-hr]	0.09 [0.07]
CO ₂ (Carbon dioxide)	g/kw-hr [g/hp-hr]	677.00 [504.84]

Emissions (in accordance with ISO 8178 Cycle E5)

NO _x (Oxides of Nitrogen)	g/kw-hr [g/hp-hr]	5.00 [3.73]
HC (Hydrocarbons)	g/kw-hr [g/hp-hr]	0.14 [0.10]
CO (Carbon Monoxide)	g/kw-hr [g/hp-hr]	0.43 [0.32]
PM (Particulate Matter)	g/kw-hr [g/hp-hr]	0.09 [0.07]
CO ₂ (Carbon dioxide)	g/kw-hr [g/hp-hr]	682.00 [508.57]

Cooling System¹

Sea Water Pump Specifications	MAB 0.08.17-07/16/2001	
Pressure Cap Rating (With Heat Exchanger Option)	kPa [psi]	110 [16]
Max. Coolant Outlet Pressure from the Engine.....	kPa [psi]	414 [60]

Sea Water Aftercooled Engine (SWAC)

Standard Thermostat Operating Range (Start to Open)	°C [°F]	71 [160]
Standard Thermostat Operating Range (Full Open)	°C [°F]	83 [182]

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- 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.
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