



**CUMMINS MARINE**  
 Charleston, SC 29405  
 Marine Performance Curves  
[gce.cummins.com](http://gce.cummins.com)

Basic Engine Model:  
**QSB7-DM**

Curve Number:  
**DM-93775**

Engine Configuration:  
**D313014MX03**

CPL Code:  
**3460**

Date:  
**18-Sep-17**

Displacement: **6.7 liter [408 in<sup>3</sup>]**  
 Bore: **107 mm [4.21 in]**  
 Stroke: **124 mm [4.88 in]**  
 Fuel System: **High Pressure Common Rail**  
 Cylinders: **6**

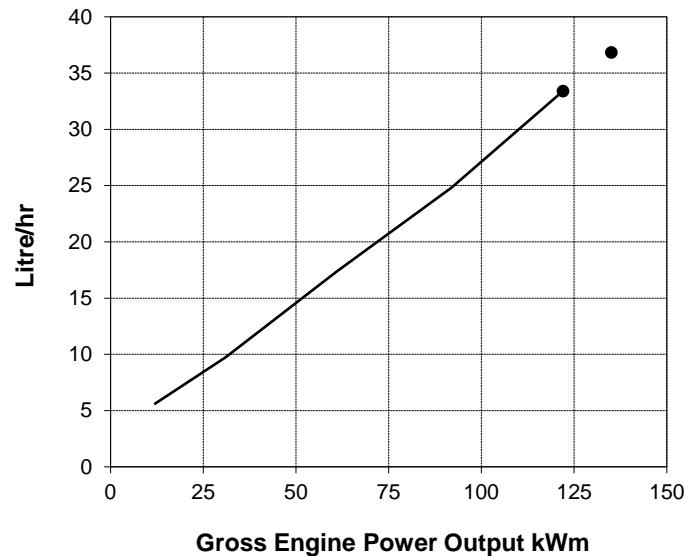
Advertised Power: **122[164]@1500** kW [hp] @ rpm  
 Aspiration: **Turbocharged / Aftercooled**  
 Exhaust Type: **Water Jacketed**

CERTIFIED: This marine diesel engine complies with or is certified to the:  
 EPA Tier 3 - Model year requirements of the EPA marine regulation (40CFR94)  
 EU Stage IIIa - EC Nonroad Mobile Machinery Directive (2004/26/EC)  
 IMO Tier II (Two) NOx requirements of International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13

Engine Speed	Overload Capacity		Prime Power		Continuous Power	
	kWm	BHP	kWm	BHP	kWm	BHP
RPM						
1500	134	180	122	164	98	131

### Engine Performance Data @ 1500 rpm

OUTPUT POWER			FUEL CONSUMPTION			
%	kWm	BHP	kg/kWh	Lb/ BHP-h	Liter/ hour	U.S. Gal/ hour
<b>10% OVERLOAD CAPACITY</b>						
110%	135	180	0.230	0.378	36.8	9.7
<b>PRIME POWER</b>						
100%	122	164	0.229	0.377	33.4	8.8
75%	92	123	0.227	0.374	24.8	6.6
50%	61	82	0.238	0.392	17.4	4.6
25%	31	41	0.267	0.440	9.7	2.6
10%	12	16	0.385	0.633	5.6	1.5
<b>CONTINUOUS POWER</b>						
80%	98	131	0.228	0.374	26.5	7.0



**Rating Conditions:** Ratings are in accordance with ISO 15550 and ISO 8528-5 reference conditions; air pressure at 100 kPa (29.61 in Hg), air temperature 25°C (77°F), and 30% relative humidity.

Power output curves are based on the engine operating with fuel system, water pump, and lubricating oil pump; not included are battery charging alternator, fan, optional equipment, and driven components.

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.

Unless otherwise specified, tolerance on all values is +/-5%.

**Prime Power Rating** is applicable for supplying continual electrical power at varied load. The following are the Prime Rating parameters:

\* Engines with a Prime Power rating are available for an unlimited number of hours per year in variable load applications. Variable load is not to exceed an 80 percent average of the rated power.

\* A 10 percent overload capability is available for a period of one hour within a 12 hour period of operation.

\* Total operating time at the 10 percent overload power shall not exceed 25 hours per year. This power rating follows ISO 8528 guidelines.

TECHNICAL DATA DEPT.

CHIEF ENGINEER

# Auxiliary Marine Engine Performance Data

**Curve No.**    **DM-93775**  
**DS :**        **D31-MX-1**  
**CPL :**       **3460**  
**DATE:**      **18-Sep-17**

## General Engine Data

Engine Model .....	QSB7-DM		
Rated Engine Power .....	Prime Power	Overload	
Governed Engine Speed .....	122    [164]	134    [180]	
Rated HP Production Tolerance .....	1500		
Rated Engine Torque .....	5		
Default Idle Speed Setting .....	779    [574]	854    [630]	
Low Idle Speed Range    Minimum .....	700		
	700		

## Maximum Continuous Torque Capacity from Front of Crank

Maximum Torque Capacity from Front of Crank <sup>2</sup> .....	778    [574]		
Brake Mean Effective Pressure .....	1462    [212]	1605    [233]	
Compression Ratio .....	17.3:1		
Piston Speed .....	6    [1220]		
Firing Order .....	1-5-3-6-2-4		
Friction Power .....	19    [25]		
Steady State Stability Band at Constant Load .....	0.25		

Weight Dry - Engine With Heat Exchanger .....kg [lb]    708    [1561]

## Noise and Vibration

Average Noise Level - Top	(Idle).. .....	dBA @ 1m	N.A.
	(Rated) .....	dBA @ 1m	N.A.
Average Noise Level - Right Side	(Idle).. .....	dBA @ 1m	N.A.
	(Rated) .....	dBA @ 1m	N.A.
Average Noise Level - Left Side	(Idle).. .....	dBA @ 1m	N.A.
	(Rated) .....	dBA @ 1m	N.A.

## Fuel System<sup>1</sup>

Approximate Fuel Flow to Pump .....	134.0    [35.4]	134.0    [35.4]	
Maximum Allowable Fuel Supply to Pump Temperature .....	60    [140]	60    [140]	
Approximate Fuel Flow Return to Tank .....	100.6    [26.6]	97.2    [25.7]	
Approximate Fuel Return to Tank Temperature .....	55    [130]	55    [131]	
Maximum Heat Rejection to Drain Fuel .....	1    [43]	1    [42]	
Average Fuel Consumption- Emissions ISO 8178 D2 Test Cycle.....	16.6    [4.4]		

## Air System<sup>1</sup>

Intake Manifold Pressure .....	135    [40]	149    [44]	
Intake Air Flow .....	152    [322]	161    [340]	
Heat Rejection to Ambient .....	10    [553]	9    [531]	

## Exhaust System<sup>1</sup>

Exhaust Gas Flow .....	354    [751]	382    [809]	
Exhaust Gas Temperature (Turbine Out) .....	440    [823]	457    [854]	
Exhaust Gas Temperature (Manifold) .....	615    [1138]	640    [1182]	
Heat Rejection to Exhaust .....	85    [4851]	94    [5376]	

TBD= To Be Determined

N/A = Not Applicable

N.A. = Not Available

- <sup>1</sup> Unless otherwise specified, all data is at rated power conditions and can vary ± 5%.
- <sup>2</sup> 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.
- <sup>3</sup> 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.
- <sup>4</sup> Consult option notes for flow specifications of optional Cummins seawater pumps, if applicable.

CUMMINS INC.  
COLUMBUS, INDIANA

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**Emissions (in accordance with ISO 8178 Cycle D2)**

NOx (Oxides of Nitrogen) .....	g/kw-hr [g/bhp-hr]	3.517	[2.623]		
HC (Hydrocarbons) .....	g/kw-hr [g/bhp-hr]	0.399	[0.297]		
CO (Carbon Monoxide) .....	g/kw-hr [g/bhp-hr]	0.912	[0.680]		
PM (Particulate Matter) .....	g/kw-hr [g/bhp-hr]	0.091	[0.068]		
CO <sub>2</sub> (Carbon dioxide) .....	g/kw-hr [g/bhp-hr]	827	[616]		

**Emissions (in accordance with ISO 8178 Cycle E2)**

NOx (Oxides of Nitrogen) .....	g/kw-hr [g/bhp-hr]	3.583	[2.672]		
HC (Hydrocarbons) .....	g/kw-hr [g/bhp-hr]	0.184	[0.137]		
CO (Carbon Monoxide) .....	g/kw-hr [g/bhp-hr]	0.753	[0.562]		
PM (Particulate Matter) .....	g/kw-hr [g/bhp-hr]	0.086	[0.064]		
CO <sub>2</sub> (Carbon dioxide) .....	g/kw-hr [g/bhp-hr]	757	[565]		

**Cooling System<sup>1</sup>**

Sea Water Pump Specifications .....	MAB 0.08.17-07/16/2001				
Minimum Pressure Cap Rating .....	.....kPa [psi]	103	[15]		

**Engines with Keel Cooling**

Coolant Flow to Cooler (with blocked open thermostat).....	l/min [gal/min]	132	[35]		
Standard Thermostat Operating Range	Start to open.....	71	[160]		
	Full open.....	83	[181]		
Heat Rejection to Engine Coolant <sup>3</sup> .....	kW [Btu/min]	128	[7272]	135	[7660]
Maximum Engine Coolant Inlet Temperature from Cooler.....	°C [°F]	54	[130]		

**Engines with Radiator Cooling**

Coolant Flow to Radiator (with blocked open thermostat).....	l/min [gal/min]	132	[35]		
Standard Thermostat Operating Range	Start to open.....	71	[160]		
	Full open.....	83	[181]		
Heat Rejection to Engine Coolant <sup>3</sup> .....	kW [Btu/min]	128	[7272]	135	[7660]
Maximum Coolant Inlet Temperature from Radiator					
For Radiator @ 35° C [95° F] Ambient Air.....	°C [°F]	54	[130]		
For Radiator @ 50° C [122° F] Ambient Air.....	°C [°F]	68	[155]		

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