

**Rating Conditions:** Ratings are in accordance with ISO-3046 reference conditions; air pressure at 100 kPa (29.61.in Hg.), air temperature 25°C (77°F), and 30% relative humidity. The fuel consumption data is based on GB252 No.0 diesel fuel (No. 2 diesel fuel in U.S.) weight at 0.85 kg/litre (7.1 lb/U.S. gal).

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.

Operation at Elevated Temperatures for sustained operation above 40°C (104°F), derate 2% per 11°C (1% per 10° **Prime Power Rating** is applicable for supplying continual electrical power at varied load. The following are the Prime Rating parameters:

\* Prime Power is available for an unlimited number of hours per year in a variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 250 hours.

\* The total operating time at 100% Prime Power shall not exceed 500 hours per year.

\* There is a 10% overload capability for a period of 1 hour within a 12 hour period of operation. Total operating time at 10% overload shall not exceed 25 hours per year.



## Chongqing Cummins Engine Co. Ltd.

## Auxiliary Marine Engine Performance Data

LLEL		0 N.	D(10) (57
		Curve No.: DS:	D(M)-457 DS-D193097
		CPL:	CQ411
		DATE:	29-Aug-08
General Engine Data <sup>1</sup>			
Engine Model			9-D(M)
Rating Type		Prime Power	Overload
Rated Engine Power	hp [kW]	450 [ 336 ]	495 [ 369]
Governed Engine Speed			1500
Rated HP Production Tolerance			
Rated Engine Torque			1732 [ 2349 ]
Idle Speed Range	•		
Brake Mean Effective Pressure	psi [kPa]		
Compression Ratio			
Piston Speed			
Friction Power	hp [kW]	60 [ 45 ]	
Fuel System <sup>1</sup>			
Fuel Consumption	gal/br[l/br]	21.8 [ 82.5 ]	24 [ 90.8 ]
Approximate Fuel Flow to Pump			24[00.0]
Maximum Allowable Fuel Supply to Pump Tem			
Approximate Fuel Flow Return to Tank			
Fuel Rail Pressure			
		101[020]	
Weight <sup>1</sup>			
Dry - Engine Only	lb. [kg]	3996 [ 1814 ]	
Dry - Engine With Heatexchanger	lb. [kg]	4416[ 2005 ]	
Installation Diagram No		4914569	
Hookup Diagram & Drawing, electrical circuit N	٥	4061349	4061350
Air System <sup>1</sup>			
Intake Manifold Pressure	in Ha [kPa]		42 [ 446 ]
Intake Air Flow			43 [ 146 ]
Heat Rejection to Ambient			
		2846 [ 50 ]	
Exhaust System <sup>1</sup>			
Exhaust Gas Flow	cfm [l/sec]	2529 [ 1194 ]	
Exhaust Gas Temperature (Turbine Out)	°F [°C]	975 [ 524 ]	
Heat Rejection to Exhaust	BTU/min [kW]	13604 [ 239 ]	
1			
Cooling System <sup>1</sup>			
Coolant Flow to Engine Heat Exchanger/Keel			
At 3 psi Friction Head External to Engine			
At 8 psi Friction Head External to Engine			
Standard Thermostat Operating Range (Min)			
Standard Thermostat Operating Range (Max).			
Heat Rejection to Engine Coolant <sup>3</sup>			
Heat Rejection to LTA Coolant <sup>3</sup>			
Sea Water Flow @ 10 psi Pump Discharge P			
Pressure Cap Rating (With Heat Exchanger C	pption)psi [kPa]	7 [ 50 ]	
TBD = To Be Determined	N/A = Not Applicable	N.A	. = Not Avaliable
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).

## CHONGQING CUMMINS ENGINE CO. LTD.

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All Data is Subject to Change Without Notice - contact CCEC for most recent data .