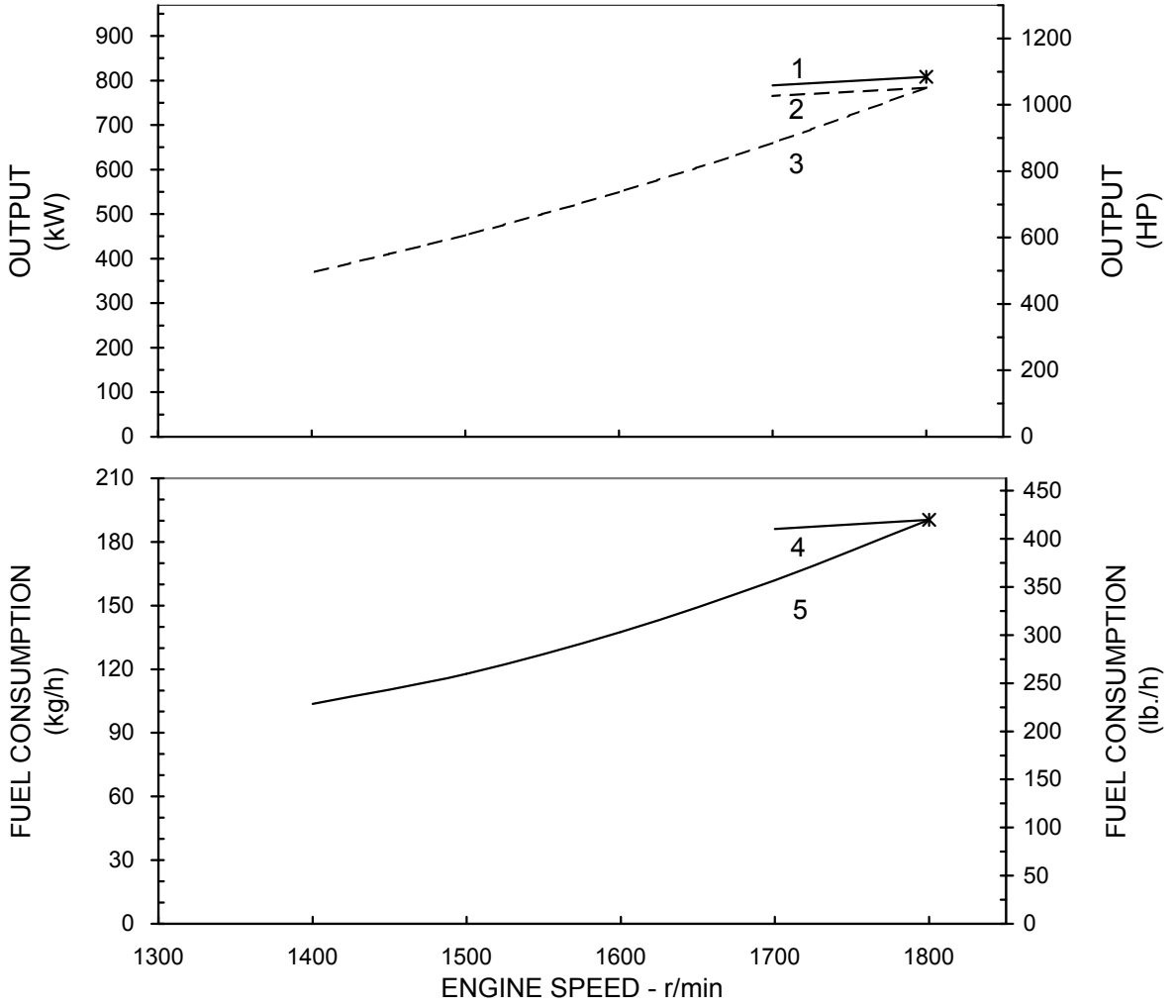
CCEC	CHONGQING CUMMINS ENGINE PERFORMANCE CURVE	Engine Model KTA38-M2	Curve No. M-641		
		Configuration D233034MX02	CPL Code 1542	Date 11-Dec-08	

Displacement:	**38L**	**[2300 in.^{3}]**	Advertised Power:	**895kW [1200HP] @1800 r/min**
Bore:	**159mm**	**[6.25 in.]**		
Stroke:	**159mm**	**[6.25 in.]**	Aspiration:	**Turbocharged/Aftercooled**
Fuel System:	**PT**		Rating Type:	**Continuous**
Cylinders:	**12**			

CERTIFIED: This marine diesel engine complies with or is certified to the:
IMO-NOx requirements of the International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13



Rating Conditions:Ratings are based upon ISO 8665 and SAE J1228 reference conditions;air pressure of 100kPa [29.612 in.Hg] air temperature 25°C [77°F] and 30% relative humidity.Power is rated in accordance with IMCI

Fuel consumption is based on fuel of 35° API gravity at 16°C (60°F) having LHV of 42,780 kj/kg (18,390 Btu/lb) and weighing 838.9 g/liter (7.001 lb/U.S.gal).

Propeller Shaft Power represents the net power available after typical reverse/reduction gear losses and is 97% of rated power.

1. Brake power
2. Shaft power with Reverse / Reduction Gear
3. Typical Propeller Power Curve (3.0 exponent)
4. Fuel Consumption for Brake and Shaft power.
5. Fuel Consumption for Typical Propeller.

Continuous Rating: This power rating is intended for continuous use in applications requiring uninterrupted service at full power. This rating is an ISO3046 Standard Power Rating.

Chongqing Cummins Engine Co. Ltd.

Propulsion Marine Engine Performance Data

Curve No.: M-641
DS: DS-4983
CPL: 1542
DATE: 11-Dec-08

General Engine Data	
Engine Model	KTA38-M2
Rating Type	Continuous
Rated Engine Power hp [kW]	1200 [895]
Rated Engine Speed rpm	1800
Peak Engine Torque @ 1500 rpm lb.·ft. [N·m]	3842 [5210]
Brake Mean Effective Pressure psi [kPa]	228 [1570]
Minimum Idle Speed Setting rpm	625-675
Normal Idle Speed Variation ±rpm	25
High Idle Speed Range Minimum rpm	1815
Maximum rpm	2016
Aspiration	Turbocharged/Aftercooled
Compression Ratio	13.9:1
Piston Speed ft/min [m/sec]	1870 [9.5]
Weight (Dry) - Engine Only - Average lb. [kg]	9291 [4218]
Weight (Dry) - Engine With Heatexchanger System - Average lb. [kg]	9996 [4538]
Installation Diagram No.	4061365
Fuel System[1]	
Fuel Consumption at Rated Speed gal/hr [l/hr]	59 [224]
Approximate Fuel Flow to Pump gal/hr [l/hr]	105 [397]
Maximum Allowable Fuel Supply to Pump Temperature °F [°C]	140 [60]
Approximate Fuel Return to Tank Temperature °F [°C]	154 [68]
Maximum Heat Rejection to Drain Fuel BTU/min [kW]	171 [3]
Fuel Pressure - Pump Out / Rail Mechanical Gauge psi [kPa]	122.0 [841]
Air System[1]	
Intake Manifold Pressure in. Hg [kPa]	54 [183]
Intake Air Flow cfm [l/sce]	2599 [1227]
Heat Rejection to Ambient BTU/min [kW]	4440 [78]
Exhaust System[1]	
Exhaust Gas Flow cfm [l/sec]	6290 [2970]
Exhaust Gas Temperature (Turbine Out) °F [°C]	849 [454]
Exhaust Gas Temperature (Manifold) °F [°C]	N.A.
Cooling System[1]	
Sea Water Pump Specifications	MAB 0.08.17-07/16/2001
Pressure Cap Rating (With Heat Exchanger Option) psi [kPa]	7 [50]
Engines without Low Temperature Aftercooler (LTA)	
Jacket Water Aftercooled Engine (JWAC)	
Coolant Flow to Engine Heat Exchanger gal/min [l/min]	335 [1268]
Standard Thermostat Operating Range (Start to Open) °F [°C]	180 [82]
Standard Thermostat Operating Range (Full Open) °F [°C]	203 [95]
Heat Rejection to Engine Coolant[3] BTU/min [kW]	32046 [563]

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

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