

CHONGQING CUMMINS ENGINE PERFORMANCE CURVE

Engine Model	Curve No.	
NTA855-M	M-194	
Configuration	CPL Code	Date
D093348MX02	0990	27-Aug-08

Displacement: 14L [855 in.3] Advertised Power: 336kW [450HP] @1800 r/min

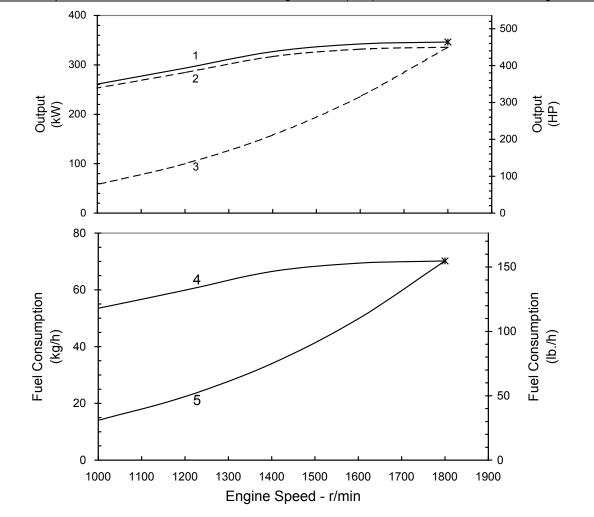
Bore: 140mm [5.50 in.]

Stroke: 152mm [6.00in.] Aspiration: Turbocharged/Aftercooled

Fuel System: PT Rating Type: Heavy Duty Cylinders: 6

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 prodedures.

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

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

Heavy Duty Rating: This power rating is intended for continuous use in variable load applications where full power is limited to seight (8) hours out of every ten (10) hours of operation. Reduced power operations must be at or below 200 RPM of the maximum rated RPM. This is an ISO 3046 Fuel Stop Power Rating and is for applications that operate less than 5000 hours per year.



Chongqing Cummins Engine Co. Ltd.

Propulsion Marine Engine Performance Data

Curve No.: M-194
DS: DS-4962
CPL: 0990
DATE: 27-Aug-08

General Engine Data	
Engine Model	NTA855-M
Rating Type	Heavy Duty
Rated Engine Powerhp [kW]	450 [336]
Rated Engine Speedrpm	1800
Peak Engine Torque @ rpmlb.·ft. [N·m]	N.A.
Brake Mean Effective Pressurepsi [kPa]	232 [1600]
Minimum Idle Speed Settingrpm	575-650
Normal Idle Speed Variation±rpm	25
High Idle Speed Range Minimumrpm	1962
Maximumrpm	2106
Aspiration	Turbocharged/Aftercooled
Compression Ratio	14.5:1
Piston Speed	1791 [9.1]
Weight (Dry) - Engine Only - Averagelb. [kg]	2870 [1303]
Weight (Dry) - Engine With HeatexchangerSystem - Averagelb. [kg]	3150 [1430]
Installation Diagram No	4061314
1	
Fuel System ¹	
Fuel Consumption at Rated Speedgal/hr [l/hr]	22 [83]
Approximate Fuel Flow to Pumpgal/hr [l/hr]	66 [249]
Maximum Allowable Fuel Supply to Pump Temperature	160 [71]
Approximate Fuel Return to Tank Temperature°F [°C]	N.A.
Maximum Heat Rejection to Drain FuelBTU/min [kW]	N.A.
Fuel Pressure - Pump Out / Rail Mechanical Gaugepsi [kPa]	163 [1123]
Air System ¹	
Intake Manifold Pressurein. Hg [kPa]	58 [196]
Intake Air Flow	932 [440]
Heat Rejection to Ambient	2391 [42]
Trout Nojoulon to Ambienta	2001 [42]
Exhaust System ¹	
Exhaust Gas Flow	2097 [990]
Exhaust Gas Temperature (Turbine Out)°F [°C]	790 [421]
Exhaust Gas Temperature (Manifold)°F [°C]	1060 [571]
0	
Cooling System ¹	
Sea Water Pump Specifications	7 [50]
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 Exchangergal/min [l/min]	70 [264]
	70 [264]
Standard Thermostat Operating Range (Start to Open)	180 [82]
Standard Thermostat Operating Range (Full Open)	201 [94]
Heat Rejection to Engine CoolantBTU/min [kW]	14344 [252]

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).

CHONGQING CUMMINS ENGINE CO. LTD.

CHONGQING, P.R.CHINA, 400031

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



CHONGQING CUMMINS ENGINE PERFORMANCE CURVE

Engine Model	Curve No.	
NTA855-M	M-892	
Configuration	CPL Code	Date
D093348MX02	CQ163	6/Dec/10

Displacement: 14L [855 in.3] Advertised Power 336kW [450HP] @2100 r/min

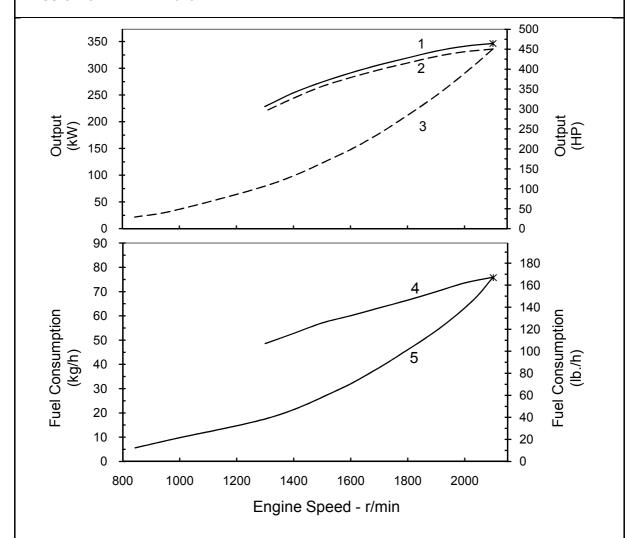
Bore: **140mm** [5.50 in.]

Stroke: 152mm [6.00in.] Aspiration: Turbocharged/Aftercooled

Fuel System: PT Rating Type: Medium Continuous

Cylinders: 6

EMISSION CERTIFIED: None



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 prodedures.

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

- 4. Fuel Consumption for Brake and Shaft power.
- 2. Shaft power with Reverse / Reduction Gear 5. Fuel Consumption for Typical Propeller.
- 3. Typical Propeller Power Curve (2.7 exponent)

Medium Continuous Rating: This power rating is intended for continuous use in variable load applications where full power is limited to six (6) hours out of every twelve (12) hours of operation. Also, reduced power operations must be at or below 200 RPM of the maximum rated RPM. This is an ISO 3046 Fuel Stop Power Rating and is for applications that operate 3,000 hours per year or less.

Chongqing Cummins Engine Co. Ltd.

Propulsion Marine Engine Performance Data

Curve No.: M-892
DS: DS-4962
CPL: CQ163
DATE: 6-Dec-10

General Engine Data	
Engine Model	NTA855-M
Rating Type	Medium Continuous
Rated Engine Power	450 [336]
Rated Engine Speedrpm	2100
Peak Engine Torque @ rpmlb.·ft. [N·m]	N.A. [不可用]
Brake Mean Effective Pressurepsi [kPa]	199 [1371]
Minimum Idle Speed Settingrpm	575-650
Normal Idle Speed Variation±rpm	35
High Idle Speed Rang Minimum rpm	2290
Maximum rpm	2415
Aspiration	Turbocharged/Aftercooled
Compression Ratio	14.0:1
Piston Speed	2094 [10.64]
Weight (Dry) - Engine Only - Averagelb. [kg]	2870 [1303]
Weight (Dry) - Engine With Heatexchanger System - Averagelb. [kg]	3150 [1430]
Installation Diagram No	4061358
Fuel System ¹	
Fuel Consumption at Rated Speedgal/hr [l/hr]	24 [90]
Approximate Fuel Flow to Pumpgal/hr [l/hr]	24 [89] 71 [267]
Maximum Allowable Fuel Supply to Pump Temperature	160 [71]
	N.A.
Approximate Fuel Return to Tank Temperature	N.A. N.A.
Fuel Pressure - Pump Out / Rail Mechanical Gauge psi [kPa]	194 [1337]
ruel Fressure - Fump Out / Raii iviechanical Gauge psi [kFa]	194 [1337]
Air System ¹	
Intake Manifold Pressurein. Hg [kPa]	50 [169]
Intake Air Flow	979 [462]
Heat Rejection to AmbientBTU/min [kW]	2561 [45]
- · · · · · · · · · · · · · · · · · · ·	
Exhaust System ¹	
Exhaust Gas Flow	2237 [1056]
Exhaust Gas Temperature (Turbine Out)°F [°C]	882 [472]
Exhaust Gas Temperature (Manifold)°F [°C]	1152 [622]
Cooling System ¹	
Sea Water Pump SpecificationsMAB 0.08.17-07/16/2001	
Pressure Cap Rating (With Heat Exchanger Option)psi [kPa]	7 [50]
Engines without Low Temperature Aftercooler (LTA)	. [00]
Jacket Water Aftercooled Engine (JWAC)	
Coolant Flow to Engine Heat Exchangergal/min [l/min]	70 [264]
Standard Thermostat Operating Range (Start to Open)°F [°C]	180 [82]
Standard Thermostat Operating Range (Full Open)°F [°C]	201 [94]
Heat Rejection to Engine Coolant ³	16678 [293]
Heat Rejection to Engine Coolant	10070 [200]

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).

CHONGQING CUMMINS ENGINE CO. LTD.

CHONGQING, P.R.CHINA, 400031

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