



## 重庆康明斯发动机 船机性能曲线

发动机型号  
**NTA855-M**

曲线编号  
**M-194**

特征编号  
**D093348MX02**

CPL代号  
**0990**

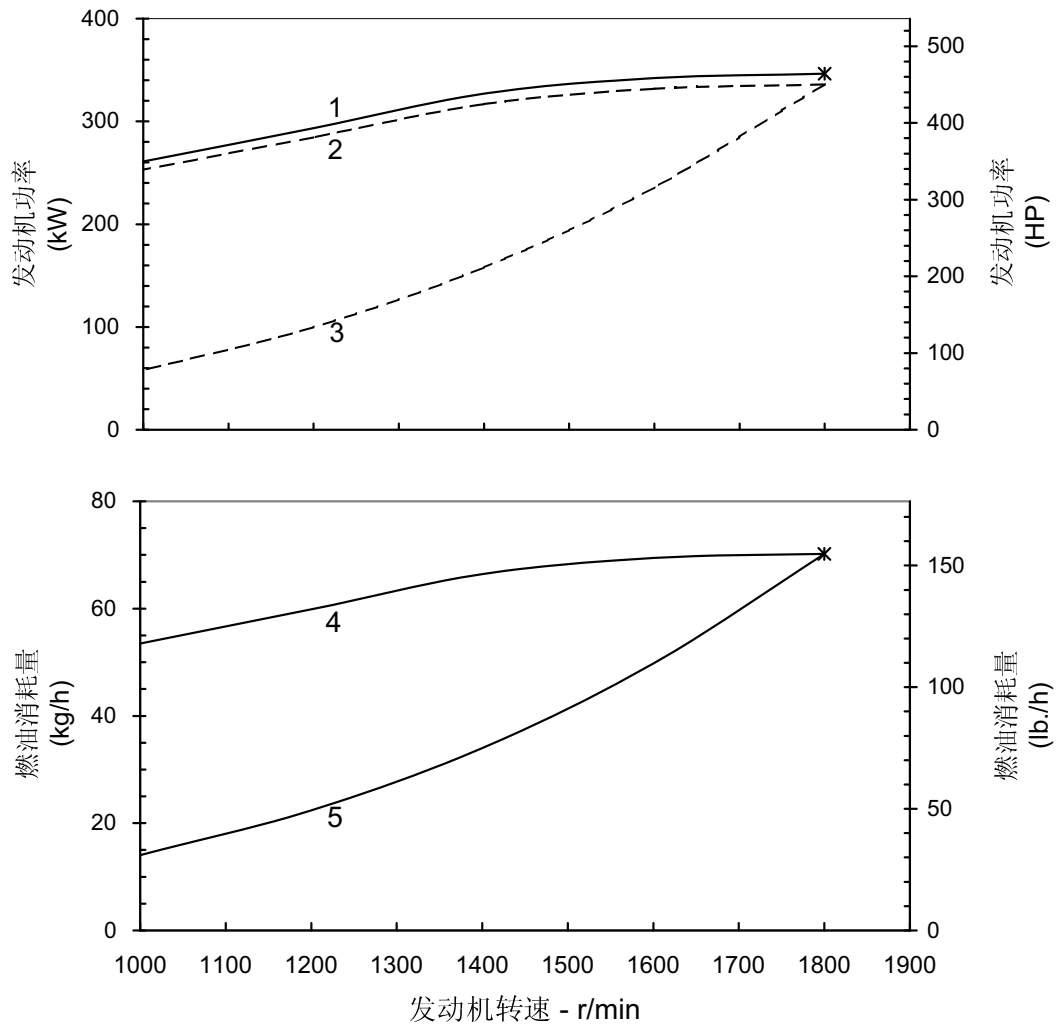
日期  
**2008-8-27**

排量: **14L [855 in.<sup>3</sup>]**  
缸径: **140mm [5.50 in.]**  
冲程: **152mm [6.00in.]**  
燃油系统: **PT**  
缸数: **6**

额定功率: **336kW [450HP] @1800 r/min**

吸气方式: **增压、中冷**  
功率标定: **重载功率**

认证: 此船用柴油机满足以下认证:  
国际海事组织 (IMO) 的IMO-NOx要求, MPA POL 73/78 附则VI第13条



标定条件: 功率标定的条件采用的是ISO8665和SAE J1228标准条件: 大气压力100kPa[29.612 in. Hg], 环境温度25℃ [77°F], 相对湿度30%。功率定义按IMCI程序执行。

燃油消耗量是使用35°API, 16℃ [60°F]时的比重为838.9g/L[7.001lb./U.S.Gal]LHV为42,780kJ/kg[18,390Btu/lb.]的燃油得出的。推进轴功率反映的是扣除齿轮箱损失后的净功率, 约为额定功率的97%。

- 1、制动功率。
- 2、扣除齿轮箱损失后的轴功率。
- 3、推进功率曲线。(曲线指数为3.0)
- 4、制动及轴功率所对应的燃油消耗量。
- 5、推进曲线对应的燃油消耗量。

**重载功率:** 用于持续使用的变负荷场合, 每10小时里全功率使用限在8小时以内。降功率使用应以低于额定转速200RPM或以下的转速运行。这是ISO3046燃油截止功率, 年使用时间不超过5000小时。



# 重庆康明斯发动机有限公司

## 船舶推进用发动机性能数据

性能曲线: M-194  
 数据单: DS-4962  
 CPL: 0990  
 日期: 2008-8-27

### 整机数据

|                              |               |
|------------------------------|---------------|
| 发动机型号.....                   | NTA855-M      |
| 功率标定方式.....                  | 重载功率          |
| 额定功率.....kW [hp]             | 336 [ 450 ]   |
| 额定功率转速.....rpm               | 1800          |
| 在 rpm时的最大扭矩.....N·m [lb·ft.] | 不可用           |
| 平均有效压力.....kPa [psi]         | 1600 [ 232 ]  |
| 最低怠速设定.....rpm               | 575-650       |
| 一般转速波动量.....±rpm             | 25            |
| 高怠速范围                        |               |
| 最低.....rpm                   | 1962          |
| 最高.....rpm                   | 2106          |
| 进气方式.....                    | 增压、中冷         |
| 压缩比.....                     | 14.5:1        |
| 活塞速度.....m/sec [ft/min]      | 9.1 [ 1791 ]  |
| 干重——仅发动机.....kg [lb.]        | 1303 [ 2870 ] |
| 干重——带热交换器.....kg [lb.]       | 1430 [ 3150 ] |
| 安装图号.....                    | 4061314       |

### 燃油系统<sup>1</sup>

|                              |                   |
|------------------------------|-------------------|
| 额定转速燃油消耗量.....l/hr [gal/hr]  | 83 [ 22 ]         |
| 到燃油泵的近似燃油量.....l/hr [gal/hr] | 249 [ 66 ]        |
| 最高允许燃油泵进油温度.....°C [°F]      | 71 [ 160 ]        |
| 流回油箱的近似燃油温度.....°C [°F]      | 不可用               |
| 最大对回油的传热量.....kW [BTU/min]   | 不可用               |
| 燃油压力——油泵出口/油道                | 机械表.....kPa [psi] |
|                              | 1123 [ 163 ]      |

### 进气系统<sup>1</sup>

|                           |             |
|---------------------------|-------------|
| 进气歧管压力.....kPa [in. Hg]   | 196 [ 58 ]  |
| 进气流量.....l/sec [cfm]      | 440 [ 932 ] |
| 对环境辐射散热量.....kW [BTU/min] | 42 [ 2391 ] |

### 排气系统<sup>1</sup>

|                         |              |
|-------------------------|--------------|
| 排气流量.....l/sec [cfm]    | 990 [ 2097 ] |
| 排气温度(增压器出口).....°C [°F] | 421 [ 790 ]  |
| 排气温度(排气歧管).....°C [°F]  | 571 [ 1060 ] |

### 冷却系统<sup>1</sup>

|                       |                        |
|-----------------------|------------------------|
| 海水泵规范.....            | MAB 0.08.17-07/16/2001 |
| 压力盖开启压力.....kPa [psi] | 50 [ 7 ]               |

### 无低温中冷(LTA)的发动机

#### 水空中冷的发动机


|  |               |
|--|---------------|
| 流入热交换器的冷却水流量.....l/min [gal/min]           | 264 [ 70 ]    |
| 标准节温器的工作温度范围(初开).....°C [°F]               | 82 [ 180 ]    |
| 标准节温器的工作温度范围(全开).....°C [°F]               | 94 [ 201 ]    |
| 对发动机冷却水的散热量 <sup>3</sup> .....kW [BTU/min] | 252 [ 14344 ] |

- 1、所有数据均为额定条件下。
- 2、有关限制性的要求，请参阅安装指南。
- 3、对冷却液的传热量是基于50%的水与50%乙二醇的混和溶液测量的。
- 4、有关可选的康明斯海水泵的流量规范（如适用的话），请参考选用件说明。

## 重庆康明斯发动机有限公司

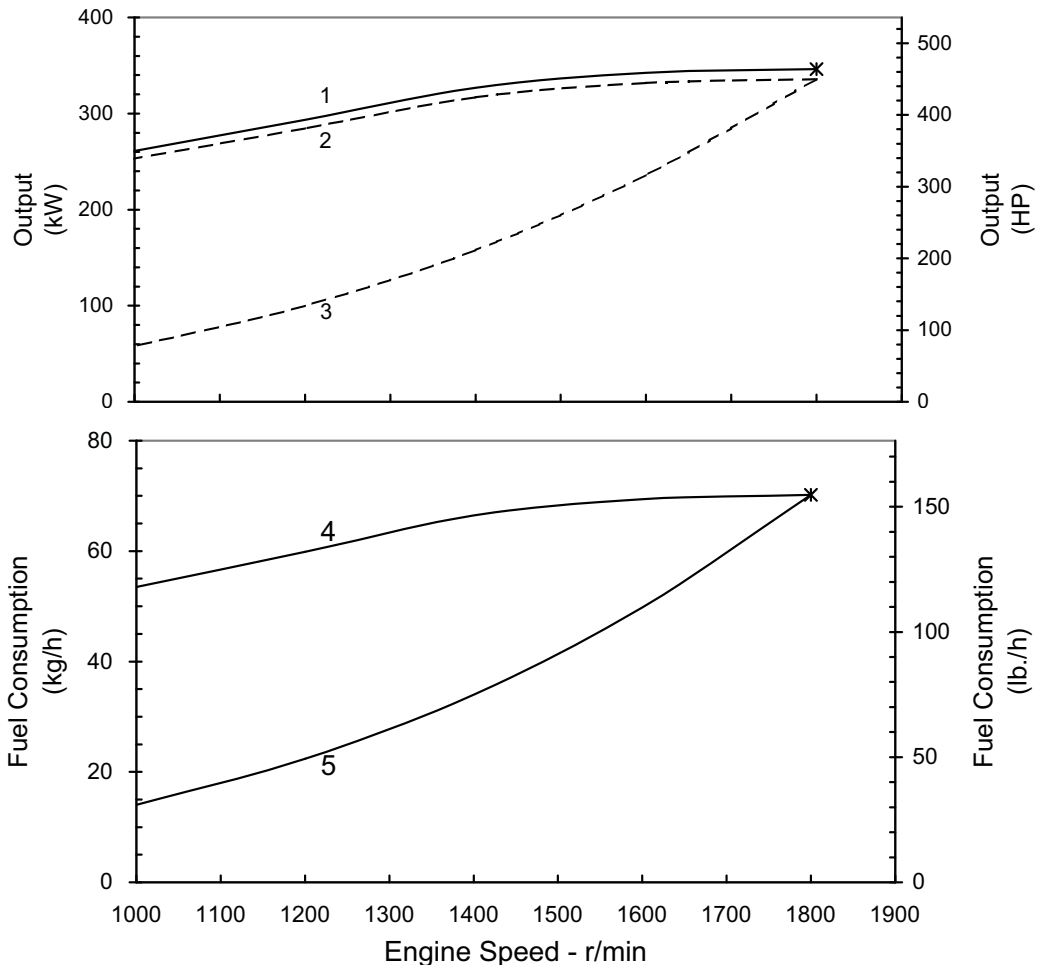
中国，重庆，400031

以上参数更改恕不通知。请咨询重庆康明斯以获得最新数据。

|   |   |                                     |                           |                          |
|---|---|-------------------------------------|---------------------------|--------------------------|
|  | <b>CHONGQING CUMMINS ENGINE</b><br><b>PERFORMANCE CURVE</b> | Engine Model<br><b>NTA855-M</b>     | Curve No.<br><b>M-194</b> |                          |
|   |   | Configuration<br><b>D093348MX02</b> | CPL Code<br><b>0990</b>   | Date<br><b>27-Aug-08</b> |

Displacement: **14L [855 in.<sup>3</sup>]**    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 procedures.

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 eight (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 Power..... hp [kW]  | 450 [ 336 ]              |
| Rated Engine Speed..... rpm  | 1800                     |
| Peak Engine Torque @ rpm..... lb. · ft. [N · m]                        | N.A.                     |
| Brake Mean Effective Pressure..... psi [kPa]                           | 232 [ 1600 ]             |
| Minimum Idle Speed Setting..... rpm                                    | 575-650                  |
| Normal Idle Speed Variation..... ±rpm                                  | 25                       |
| High Idle Speed Range Minimum..... rpm                                 | 1962                     |
| Maximum..... rpm   | 2106                     |
| Aspiration .....   | Turbocharged/Aftercooled |
| Compression Ratio .....  | 14.5:1                   |
| Piston Speed..... ft/min [m/sec]                                       | 1791 [ 9.1 ]             |
| Weight (Dry) - Engine Only - Average..... lb. [kg]                     | 2870 [ 1303 ]            |
| Weight (Dry) - Engine With HeatexchangerSystem - Average..... lb. [kg] | 3150 [ 1430 ]            |
| Installation Diagram No.....   | 4061314                  |

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

|   |              |
|---|--------------|
| Fuel Consumption at Rated Speed..... gal/hr [l/hr]                | 22 [ 83 ]    |
| Approximate Fuel Flow to Pump..... gal/hr [l/hr]                  | 66 [ 249 ]   |
| Maximum Allowable Fuel Supply to Pump Temperature..... ° F [ ° C] | 160 [ 71 ]   |
| Approximate Fuel Return to Tank Temperature..... ° F [ ° C]       | N.A.         |
| Maximum Heat Rejection to Drain Fuel..... BTU/min [kW]            | N.A.         |
| Fuel Pressure - Pump Out / Rail Mechanical Gauge..... psi [kPa]   | 163 [ 1123 ] |

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

|   |             |
|---|-------------|
| Intake Manifold Pressure..... in. Hg [kPa]  | 58 [ 196 ]  |
| Intake Air Flow..... cfm [l/sce]            | 932 [ 440 ] |
| Heat Rejection to Ambient..... BTU/min [kW] | 2391 [ 42 ] |

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

|   |              |
|---|--------------|
| Exhaust Gas Flow..... cfm [l/sec]                     | 2097 [ 990 ] |
| Exhaust Gas Temperature (Turbine Out)..... ° F [ ° C] | 790 [ 421 ]  |
| Exhaust Gas Temperature (Manifold)..... ° F [ ° C]    | 1060 [ 571 ] |

### Cooling System<sup>1</sup>

|   |          |
|---|----------|
| 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]          | 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 <sup>2</sup> ..... BTU/min [kW]    | 14344 [ 252 ] |

TBD = To Be Determined

N/A = Not Applicable

N.A. = Not Available

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 .