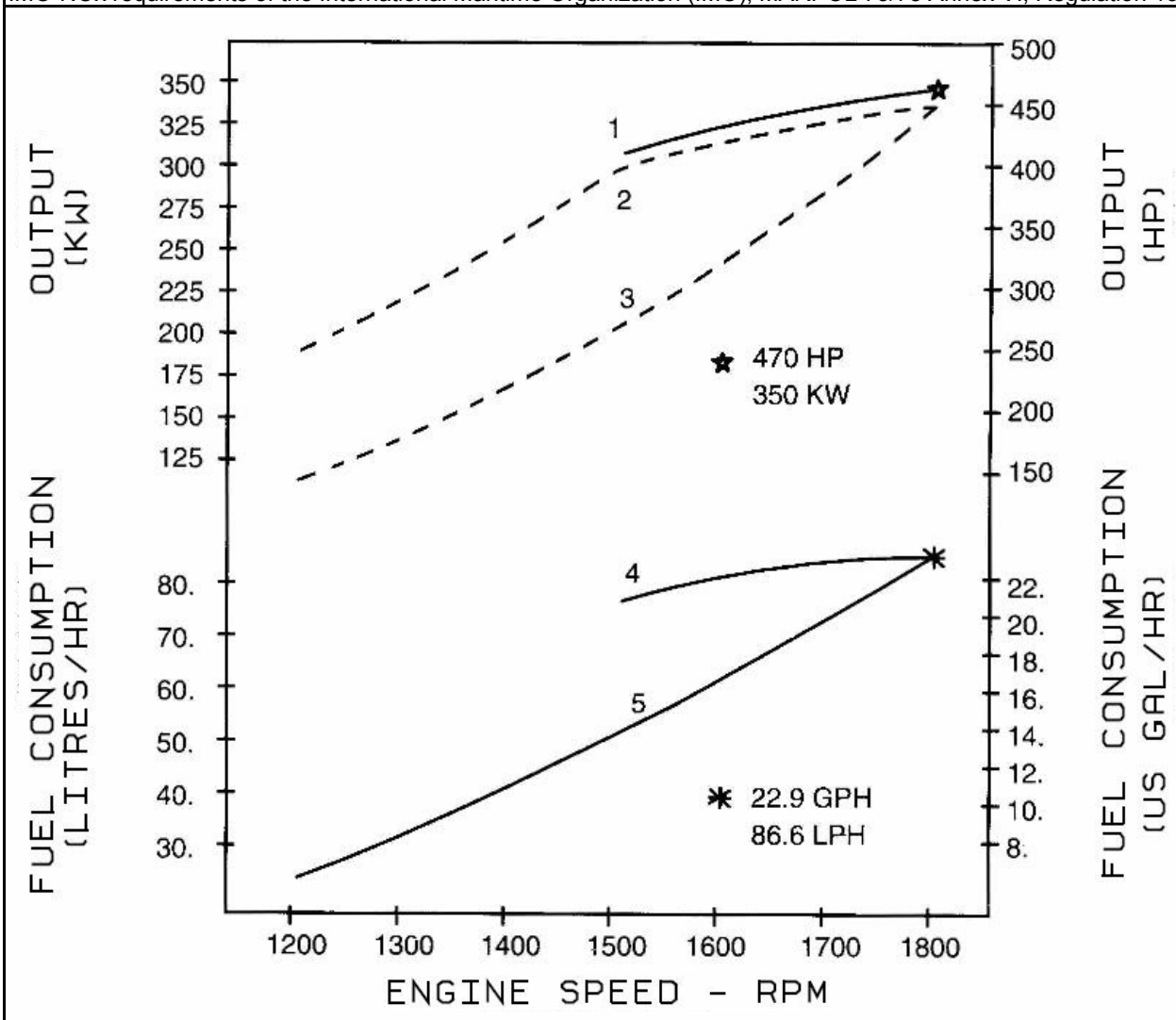
	CHONGQING CUMMINS ENGINE PERFORMANCE CURVE	Engine Model KTA19-M	Curve No. M-445	
		Configuration D193064MX02	CPL Code 0969	Date 27-Aug-08

Displacement:	14L	[855 in.³]	Advertised Power:	351kW [470HP] @1800 r/min
Bore:	140mm	[5.50 in.]	Aspiration:	Turbocharged/Aftercooled
Stroke:	152mm	[6.00in.]	Rating Type:	Continuous
Fuel System:	PT			
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) | |

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-445
DS: DS-4964
CPL: 0969
DATE: 27-Aug-08

General Engine Data

Engine Model.....	KTA19-M
Rating Type	Continuous
Rated Engine Power..... hp [kW]	470 [351]
Rated Engine Speed.....rpm	1800
Peak Engine Torque @ 1500 rpm.....lb.·ft. [N·m]	1438 [1950]
Brake Mean Effective Pressure.....psi [kPa]	179 [1232]
Minimum Idle Speed Setting..... rpm	675-775
Normal Idle Speed Variation.....±rpm	50
High Idle Speed Range Minimum..... rpm	1962
Maximum..... rpm	2106
Aspiration	Turbocharged/Aftercooled
Compression Ratio	15.5:1
Piston Speed..... ft/min [m/sec]	1870 [9.5]
Weight (Dry) - Engine Only - Average.....lb. [kg]	3800 [1725]
Weight (Dry) - Engine With HeatexchangerSystem - Average	4198 [1906]
Installation Diagram No.....	4914417

Fuel System¹

Fuel Consumption at Rated Speed.....gal/hr [l/hr]	23 [86.6]
Approximate Fuel Flow to Pump.....gal/hr [l/hr]	72 [273]
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]	169 [1164]

Air System¹

Intake Manifold Pressure.....in. Hg [kPa]	33 [112]
Intake Air Flow.....cfm [l/sce]	1059 [500]
Heat Rejection to Ambient.....BTU/min [kW]	2448 [43]

Exhaust System¹

Exhaust Gas Flow.....cfm [l/sec]	2605 [1230]
Exhaust Gas Temperature (Turbine Out).....°F [°C]	871 [466]
Exhaust Gas Temperature (Manifold).....°F [°C]	1141 [616]

Cooling System¹

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]	120 [454]
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 ³BTU/min [kW]	16222 [285]

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 .