



**CUMMINS MARINE**  
Columbus, Indiana 47201  
**Marine Performance Curve**

Basic Engine Model:  
**6BT5.9-D(M)**

Curve Number:  
**D(M)-90437**

Marine  
Pg. No.  
**B**  
**17**

Engine Configuration:  
**D402051MX02**

CPL Code:  
**1523**

Date:  
**25May00**

Displacement: **5.88 litre [359 in.<sup>3</sup>]**  
Bore: **102 mm [4.02 in.]**  
Stroke: **120 mm [4.72]**  
Fuel System: **Stanadyne DB4**  
Cylinders: **6**

Aspiration: **Turbocharged**  
Exhaust Type: **Wet**

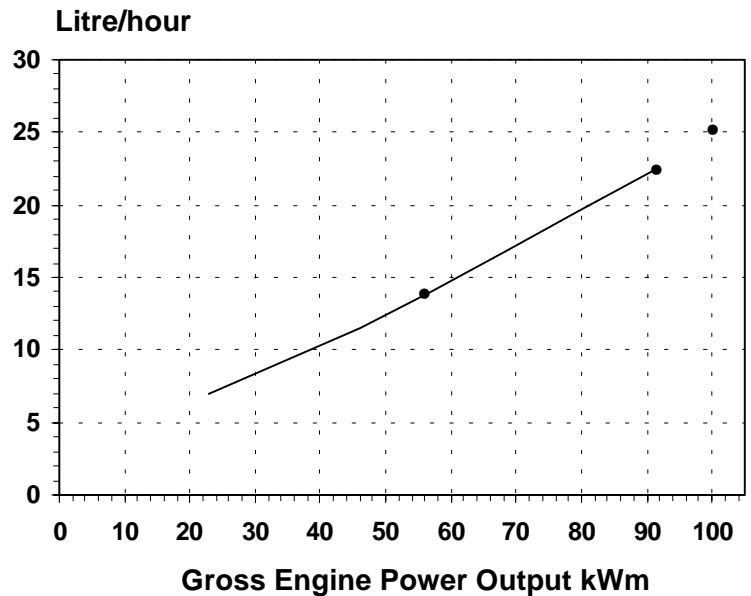
Prime Power Rating **91 [122] @ 1500** kW [HP] @ RPM

**PRELIMINARY**

Engine Speed RPM	Overload Capacity		Prime Power		Continuous Power	
	kWm	BHP	kWm	BHP	kWm	BHP
1500	100	134	91	122	56	75

**Engine Performance Data @ 1500 RPM**

OUTPUT POWER			FUEL CONSUMPTION			
%	kWm	BHP	kg/ kWm·h	lb/ BHP·h	litre/ hour	U.S. Gal/ hour
<b>10% OVERLOAD CAPACITY</b>						
110%	100	134	0.212	0.350	25.0	6.60
<b>PRIME POWER</b>						
100	91	122	0.209	0.345	22.4	5.92
75	68	92	0.208	0.343	16.7	4.42
50	46	61	0.215	0.354	11.5	3.04
25	23	31	0.257	0.424	6.9	1.82
<b>CONTINUOUS POWER</b>						
100	56	75	0.210	0.346	13.9	3.66



**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 No. 2 diesel fuel 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°F).

**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.

**Continuous Power Rating** is applicable for supplying continual power at a constant 100% load for an unlimited number of hours per year. There is no overload capability for this rating.

TECHNICAL DATA DEPT.

CHIEF ENGINEER

# PRELIMINARY

## Marine Auxiliary Engine Performance Data

### General Engine Data<sup>1</sup>

Engine Model .....	6BT5.9-D(M)	
Rating Type .....	Prime Power	Overload
Rated Engine Power .....	91 [122] kW [HP]	100 [134]
Governed Engine Speed .....	1500 RPM	1500
Rated HP Production Tolerance .....	±5 %	
Rated Engine Torque .....	579 [427] Nm [ft./lb]	636 [469]
Idle Speed Range .....	950-1150 RPM	
Brake Mean Effective Pressure .....	1237 [179] kPa [PSI]	1359 [197]
Compression Ratio .....	16.5:1	
Piston Speed .....	6.0 [1180] m/sec [ft./min]	
Firing Order .....	1-5-3-6-2-4	
Friction Power .....	17 kW [HP]	
Steady State Stability Band at any Constant Load .....	± 0.5 %	

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

Approximate Fuel Flow to Pump .....	litre/hr [GPH]	123 [33]	123 [33]
Max. Allowable Fuel Supply to Pump Temperature .....	°C [°F]	60 [140]	60 [140]
Approximate Fuel Flow Return to Tank .....	litre/hr [GPH]	101 [27]	98 [26]

### Weight<sup>1</sup>

Dry - Engine Only .....	kg [lb]	426 [940]
Dry - Engine With Heat Exchanger .....	kg [lb]	508 [1120]

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

Intake Manifold Pressure .....	mm Hg [in Hg]	TBD	TBD
Intake Air Flow .....	litre/sec [CFM]	94 [200]	104 [220]
Heat Rejection to Ambient .....	kW [BTU/min]	14 [815]	16 [895]

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

Exhaust Gas Flow .....	litre/sec [CFM]	245 [520]	269 [570]
Exhaust Gas Temperature (Turbine Out) .....	°C [°F]	424 [795]	469 [875]
Exhaust Gas Temperature (Manifold) .....	°C [°F]	TBD	TBD
Heat Rejection to Exhaust .....	kWm [BTU/min]	43 [2420]	50 [2860]

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

Coolant Flow to Engine Heat Exchanger/Keel Cooler			
At 1 psi Friction Head External to Engine .....	litre/min [GPM]	121 [32]	
At 5 psi Friction Head External to Engine .....	litre/min [GPM]	91 [24]	
Standard Thermostat Operating Range (Min.) .....	°C [°F]	82 [180]	
Standard Thermostat Operating Range (Max.) .....	°C [°F]	95 [203]	
Heat Rejection to Engine Coolant <sup>3</sup> .....	kWm [BTU/min]	77 [4410]	85 [4850]
Sea Water Flow @ 10 psi Pump Discharge Pressure .....	litre/min [GPM]	34 [9]	
Pressure Cap Rating (With Heat Exchanger Option) .....	kPa [PSI]	69 [10]	

### Installation drawings .....

3170397

### Engine General Data Sheet .....

DS-4020

TBD = To Be Decided

N/A = Not Applicable

N.A. = Not Available

<sup>1</sup>All Data at Rated Conditions

<sup>2</sup>Consult Installation Direction Booklet for Limitations

<sup>3</sup>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.

<sup>4</sup>Consult option notes for flow specifications of optional Cummins seawater pumps, if applicable.

CUMMINS ENGINE COMPANY, INC.  
COLUMBUS, INDIANA

All Data is Subject to Change Without Notice - consult the following Cummins intranet site for most recent data:  
<http://marketingtechdata.cummins.com/curves/database/htmlfiles/curvemainpage.htm>