

**CUMMINS INC.**

Charleston, SC 29405

Marine Performance Curves

Basic Engine Model:

6BT5.9-D(M)

Curve Number:

D(M)-90437

Engine Configuration:

D402051MX02

CPL Code:

1523

Date:

1-Apr-20Displacement: **5.9 liter** [359.00 in³]Bore: **102 mm** [4.02 in]Stroke: **120 mm** [4.72 in]Fuel System: **Stanadyne DB4**Cylinders: **6**

kW [hp] @ rpm

Advertised Power: **91[122]@1500**Aspiration: **Turbocharged**Exhaust Type: **Wet**

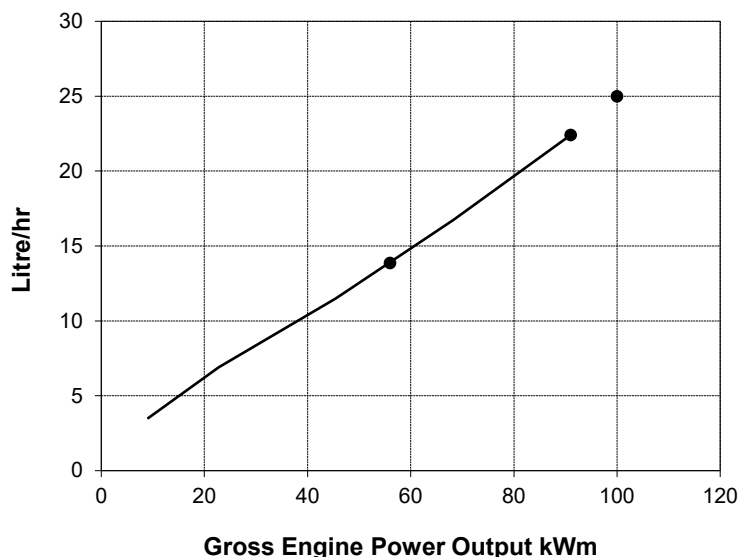
CERTIFIED: This marine diesel engine complies with or is certified to the:

No Certification Issued

Engine Speed	Overload Capacity		Prime Power		Continuous Power	
RPM	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/kWh	Lb/ BHP h	Liter/ hour	U.S. Gal/ hour
10% OVERLOAD CAPACITY						
110%	100	134	0.212	0.350	25.0	6.6
PRIME POWER						
100%	91	122	0.209	0.345	22.4	5.9
75%	68	92	0.208	0.343	16.7	4.4
50%	46	61	0.215	0.354	11.5	3.0
25%	23	31	0.257	0.424	6.9	1.8
10%	9	12	0.328	0.540	3.5	0.9
CONTINUOUS POWER						
80%	56	75	0.210	0.346	13.9	3.7



Rating Conditions: Ratings are in accordance with ISO 15550 and ISO 8528-5 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/liter (7.001 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.

Values from engine control modules and displayed on instrument panels are not absolute. Tolerance varies, but is generally less than +/-5% when operating within 30% of rated power.

Unless otherwise specified, tolerance on all values is +/-5%.

Prime Power Rating is applicable for supplying continual electrical power at varied load. The following are the Prime Rating parameters:

* Engines with a Prime Power rating are available for an unlimited number of hours per year in variable load applications. Variable load is not to exceed an 80 percent average of the rated power.

* A 10 percent overload capability is available for a period of one hour within a 12 hour period of operation.

* Total operating time at the 10 percent overload power shall not exceed 25 hours per year. This power rating follows ISO 8528 guidelines.

TECHNICAL DATA DEPT.

Scott T. Holt
CHIEF ENGINEER

Auxiliary Marine Engine Performance Data

Curve No. D(M)-90437
DS : DS-4020
CPL : 1523
DATE: 1-Apr-20

General Engine Data

Engine Model	6BT5.9-D(M)			
Rating Type	Prime Power		Overload	
Rated Engine Power	91	[122]	100	[134]
Governed Engine Speed	1500			
Rated HP Production Tolerance	5			
Rated Engine Torque	579	[427]	636	[469]
Low Idle Speed Range Minimum	950			
Maximum	1150			
Brake Mean Effective Pressure	1237	[179]	1359	[197]
Compression Ratio	16.5:1			
Piston Speed	6	[1180]		
Firing Order	1-5-3-6-2-4			
Friction Power	13	[17]		
Steady State Stability Band at Constant Load	0.5			
Weight Dry - Engine Only	426	[940]		
Weight Dry - Engine With Heat Exchanger	508	[1120]		

Fuel System¹

Approximate Fuel Flow to Pump	123.2	[32.6]	123.2	[32.6]
Maximum Allowable Fuel Supply to Pump Temperature	60	[140]	60	[140]
Approximate Fuel Flow Return to Tank	100.8	[26.6]	98.2	[26.0]
Approximate Fuel Return to Tank Temperature	TBD		TBD	
Maximum Heat Rejection to Drain Fuel	TBD		TBD	
Fuel Rail Pressure	N/A		N/A	
Average Fuel Consumption- Emissions ISO 8178 D2 Test Cycle.....	11.3	[3.0]		

Air System¹

Intake Manifold Pressure	TBD		TBD	
Intake Air Flow	94	[200]	104	[220]
Heat Rejection to Ambient	14	[815]	16	[895]

Exhaust System¹

Exhaust Gas Flow	245	[520]	269	[570]
Exhaust Gas Temperature (Turbine Out)	424	[795]	469	[875]
Exhaust Gas Temperature (Manifold)	TBD		TBD	
Heat Rejection to Exhaust	43	[2420]	50	[2860]

Cooling System¹

Sea Water Pump Specifications	MAB 0.08.17-07/16/2001			
Pressure Cap Rating (With Heat Exchanger Option)	69	[10]		
Max. Pressure Drop Across Any External Cooling System Circuit	34	[5]		

Non-Aftercooled

Coolant Flow to Main Cooler (with open thermostat).....	91	[22]		
Standard Thermostat Operating Range Start to open.....	82	[180]		
Full open.....	95	[203]		
Heat Rejection to Engine Coolant ³	77	[4410]	85	[4850]
Sea Water Flow @ 10 psi Pump Pressure.....	34	[9]		

TBD= To Be Determined

N/A = Not Applicable

N.A. = Not Available

¹ Unless otherwise specified, all data is at rated power conditions and can vary $\pm 5\%$.

² No rear loads can be applied when the FPTO is fully loaded. Max PTO torque is contingent on torsional analysis results for the specific drive system. Consult Installation Direction Booklet for Limitations.

³ 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.

⁴ 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://marine.cummins.com>

Auxiliary Marine Engine Performance Data

Curve No. D(M)-90437
DS : DS-4020
CPL : 1523
DATE: 1-Apr-20

Emissions (in accordance with ISO 8178 Cycle D2)

NOx (Oxides of Nitrogen)	g/kw·hr [g/bhp·hr]	0.000	[0.000]
HC (Hydrocarbons)	g/kw·hr [g/bhp·hr]	0.000	[0.000]
CO (Carbon Monoxide)	g/kw·hr [g/bhp·hr]	0.000	[0.000]
PM (Particulate Matter)	g/kw·hr [g/bhp·hr]	0.000	[0.000]

Emissions (in accordance with ISO 8178 Cycle E2)

NOx (Oxides of Nitrogen)	g/kw·hr [g/bhp·hr]	0.000	[0.000]
HC (Hydrocarbons)	g/kw·hr [g/bhp·hr]	0.000	[0.000]
CO (Carbon Monoxide)	g/kw·hr [g/bhp·hr]	0.000	[0.000]
PM (Particulate Matter)	g/kw·hr [g/bhp·hr]	0.000	[0.000]

Cooling System¹

Sea Water Pump Specifications	MAB 0.08.17-07/16/2001		
Pressure Cap Rating (With Heat Exchanger Option)	kPa [psi]	69	[10]
Coolant Flow To Engine Heat Exchanger/Keel Cooler			
At 1 psi Friction Head External to Engine.....	l/min [gal/min]	121	[32]
At 5 psi Friction Head External to Engine.....	l/min [gal/min]	91	[24]
Standard Thermostat Operating Range	Start to open..... °C [°F]	82	[180]
	Full open..... °C [°F]	95	[203]
Heat Rejection to Engine Coolant ³	kW [Btu/min]	77	[4410]
Sea Water Flow @ 10 psi Pump Pressure.....	l/min [gal/min]	34	[9]

Singe Loop LTA

Coolant Flow to Main Cooler (with open thermostat).....	l/min [gal/min]	0	□
Standard Thermostat Operating Range	Start to open..... °C [°F]	-18	□
	Full open..... °C [°F]	-18	□
Heat Rejection to Engine Coolant ³	kW [Btu/min]	0	□
Maximum Coolant Inlet Temperature from LTA Cooler.....	°C [°F]	-18	□

Two Loop Low Temperature Aftercooling (LTA)

Main Engine Circuit

Coolant Flow to Main Cooler (with open thermostat).....	l/min [gal/min]	0	□
Standard Thermostat Operating Range	Start to open..... °C [°F]	-18	□
	Full open..... °C [°F]	-18	□
Heat Rejection to Engine Coolant ³	kW [Btu/min]	0	□

Aftercooler (LTA) Circuit

Coolant Flow to LTA Cooler (with open thermostat).....	l/min [gal/min]	0	□
LTA Thermostat Operating Range	Start to open..... °C [°F]	-18	□
	Full open..... °C [°F]	-18	□
Heat Rejection to Engine Coolant ³	kW [Btu/min]	0	□
Maximum Coolant Inlet Temperature from LTA Cooler			
For Keel Cooled.....	°C [°F]	-18	□
For Radiator @ 35° C [95° F] Ambient Air.....	°C [°F]	-18	□
For Radiator @ 50° C [122° F] Ambient Air.....	°C [°F]	-18	□

Engines with Radiator Cooling

Coolant Flow to Radiator (Blocked open thermostat)	l/min [gal/min]	0	□
Standard Thermostat Operating Range	Start to open..... °C [°F]	-18	□
	Full open..... °C [°F]	-18	□
Heat Rejection to Engine Coolant ³	kW [Btu/min]	0	□

TBD= To Be Determined

N/A = Not Applicable

N.A. = Not Available

¹ Unless otherwise specified, all data is at rated power conditions and can vary ± 5%.

² No rear loads can be applied when the FPTO is fully loaded. Max PTO torque is contingent on torsional analysis results for the specific drive system. Consult Installation Direction Booklet for Limitations.

³ 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.

⁴ 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://marine.cummins.com>