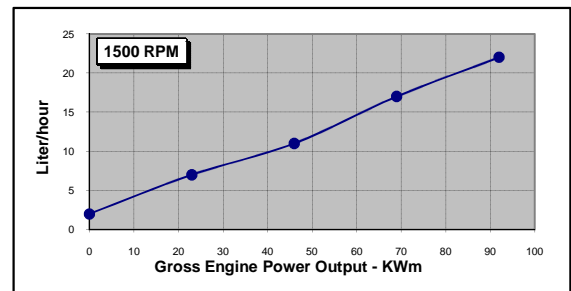
	<b>Cummins Inc.</b> <b>Engine Data sheet</b>	Basic Engine Model: 6BT5.9-G2	Date: November 2008	Page No. 1
No. of Cylinders: 6		Aspiration: Turbocharged		
Emissions: EURO II & III				

Engine Speed	Standby Power Rating		Prime Power Rating		Continuous Power Rating	
	RPM	kWm	BHP	kWm	BHP	kWm
1500	100	134	92	123	*	*
1800	115	154	105	141	*	*

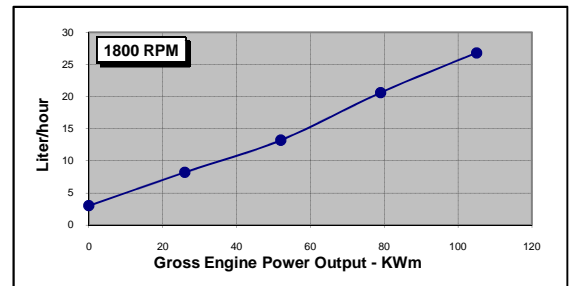
### Engine Performance Data @ 1500 RPM

Output Power			Fuel Consumption	
%	kWm	BHP	kg/ kWm-h	litre/ hour
<b>Standby Power</b>				
100	100	134	0,231	27,2
<b>Prime Power</b>				
100	92	123	0,217	23,5
75	69	92	0,222	18
50	46	62	0,217	11,7
25	23	31	0,270	7,3
<b>Continuous Power</b>				
100	*	*	*	*



### Engine Performance Data @ 1800 RPM

Output Power			Fuel Consumption	
%	kWm	BHP	kg/ kWm-h	litre/ hour
<b>Standby Power</b>				
100	115	154	0,231	31,3
<b>Prime Power</b>				
100	105	141	0,217	26,8
75	79,0	105	0,222	20,6
50	52	70	0,216	13,2
25	26	35	0,268	8,2
<b>Continuous Power</b>				
100	*	*	*	*



CONVERSIONS:      (kWm = BHP x 0.746)      (BHP = Engine kWm x 1.34)

Data shown above represent gross engine performance capabilities obtained and concerned in accordance with ISO-3046 conditions of 100 Kpa baromatic pressure [110m altitude], 25C air temperature, and relative humidity of 30% with no.2 diesel or a fuel corresponding to ASTM D2. The fuel consumption data is based on No.2 diesel fuel weight at 0.85kg/litre. Power output curves are based on the engine operating with fuel system ,water pump and lubricating oil pump; not include are charging alternator, fan, optional equipment and driven components.

TECHNICAL DATA DEPT.

CERTIFIED WITHIN 5%

CHIEF ENGINEER

## POWER RATING APPLICATION GUIDELINES FOR GENERATOR DRIVE ENGINES

These guidelines have been formulated to ensure proper application of generator drive engines in A.C. generator set installations. Generator drive engines are not designed for and shall not be used in variable speed D.C. generator set applications.

STANDBY POWER RATING is applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this rating. Under no condition is an engine allowed to operate in parallel with the public utility at the Standby Power rating.

This rating should be applied where reliable utility power is available. A standby rated engine should be sized for a maximum of an 80% average load factor and 200 hours of operation per year. This includes less than 25 hours per year at the Standby Power rating. Standby ratings should never be applied except in true emergency power outages. Negotiated power outages contracted with a utility company are not considered an emergency.

CONTINUOUS POWER RATING is applicable for supplying utility power at a constant 100% load for an unlimited number of hours per year. No overload capability is available for this rating.

PRIME POWER RATING is applicable for supplying electric power in lieu of commercially purchased power. Prime Power applications must be in the form of one of the following two categories:

### UNLIMITED TIME RUNNING PRIME POWER

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.

A 10% overload capability is available for a period of 1 hour within a 12 hour period of operation. Total operating time at the 10% overload power shall not exceed 25 hours per year.

### LIMITED TIME RUNNING PRIME POWER

Prime Power is available for a limited number of hours in a non-variable load application. It is intended for use in situations where power outages are contracted, such as in utility power curtailment. Engines may be operated in parallel to the public utility up to 750 hours per year at power levels never to exceed the Prime Power rating. The customer should be aware, however, that the life of any engine will be reduced by this constant high load operation. Any operation exceeding 750 hours per year at the Prime Power rating should use the Continuous Power rating.

### Reference Standards:

BS-5514 and DIN-6271 standards are based on ISO-3046.

### Operation At Elevated Temperature And Altitude:

The engine may be operated at:

1800 RPM up to 6,560 ft. (2000 m) and 104 °F (40 °C) without power deration.

1500 RPM up to 4,900 ft. (1500 m) and 104 °F (40 °C) without power deration.

For sustained operation above these conditions, derate by 4% per 1,000 ft (300 m), and 3% per 10 °C.



# Cummins Inc.

## Engine Data Sheet

ENGINE MODEL: 6BT5.9-G2

DATA SHEET : DS-6BT5  
DATE : November 2008

- Fan to Flywheel

### GENERAL ENGINE DATA

Type .....	(Cycles #, Disposition, Cylinders)	In-Line 4 Cycle, Water Cooled
Aspiration.....		Turbocharged
Bore x Stroke.....	(mm x mm)	102x120
Displacement.....	(liter)	5,9
Compression Ratio.....		17,5:1
Dry Weight		
Fan to Flywheel Engine.....	(Kg)	399
Wet Weight		
Fan to Flywheel Engine.....	(Kg)	422
Moment of Inertia of Rotating Components.....(kg.m <sup>2</sup> )		
Center of Gravity from Front Face of Block.....	(mm)	544
Center of Gravity above Crankshaft Centerline.....	(mm)	155

### ENGINE MOUNTING

Maximum Bending Moment at Rear Face of Block .....	(N.m)	1356
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### EXHAUST SYSTEM

Maximum Back Pressure.....	(mm Hg)	76
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### AIR INDUCTION SYSTEM

Maximum Intake Air Restriction		
• With Dirty Filter Element.....	(mmH <sub>2</sub> O)	635
• With Normal Duty Air Cleaner and Clean Filter Element .....	(mmH <sub>2</sub> O)	254
• With Heavy Duty air Cleaner and Clean Filter Element.....	(mmH <sub>2</sub> O)	381

### LUBRICATION SYSTEM

Oil Pressure @ Idle Speed .....	(kPa)	207
@ Governed Speed .....	(kPa)	345
Maximum Oil Temperature.....	(°C)	121
Oil Capacity With Oil Pan : High-Low.....	(Litre)	14,2-12,3
Total System Capacity (Including Filters).....	(Litre)	16
Angularity of Oil Pan		
• Front Down.....		40°
• Front Up .....		40°
• Side to Side.....		40°

### FUEL SYSTEM

Type Injection System .....		BYC A Stanadyne
Maximum Inlet Restriction at Injection Pump.....	(mmHg)	102
Maximum Allowable Head on Injector Return Line .....	(mmHg)	254
Fuel Flow to Lift Pump @ 43psi (3kg/cm <sup>2</sup> ).....	(Litre/hr)	202

### COOLING SYSTEM

Coolant Capacity – Engine Only .....	(Litre)	9,1
Maximum coolant Friction Head External to Engine – 1500 rpm.....	(kPa)	28
Maximum coolant Friction Head External to Engine – 1800 rpm.....	(kPa)	35
Maximum Static Head of Coolant Above Engine Crank Centerline .....	(m)	14
Standard Thermostat ( Modulating) Range.....	(°C)	82-95
Minimum Pressure Cap.....	(kPa)	69
Maximum Top Tank Temperature for Standby / prime Power .....	(°C)	104/100

### ELECTRICAL SYSTEM

Cranking Motor Voltage (Positive Engagement).....	(Volt)	24
Battery Charging System, Negative Ground .....	(Amp)	40
Maximum Allowable Resistance of Cranking Circuit .....	(Ohm)	0,002
Minimum Recommended Battery Capacity		
• Cold Soak @ -12°C.....	(°F CCA)	400

**PERFORMANCE DATA**

Governed Engine Speed .....(RPM)  
 Engine Idle Speed .....(RPM)  
 Gross Engine power output .....(kWm)  
 Brake Mean Effective Pressure .....(kPa)  
 Piston Speed .....(m/s)  
 Friction Horsepower..... (kWm)

**Engine water Flow at Stated Friction Head**

**External to Engine:**

- 1 psi Friction Head .....(litre/s)
- Maximum Friction Head .....(litre/s)

**Engine Data With Type Exhaust Manifold:**

Intake Air Flow..... (litre/s)  
 Exhaust Gas Temperature .....(°C)  
 Exhaust Gas Flow..... (litre/s)  
 Heat Rejection to Coolant .....(kWm)

STANDBY POWER		PRIME POWER	
60Hz	50Hz	60Hz	50Hz
1800	1500	1800	1500
950-1150	950-1150	950-1150	950-1150
115	100	105	92
1285	1282	1169	1166
7,2	6	7,2	6
16,4	12,7	16,4	12,7
2,4	2	2,4	2
1,9	1,5	1,9	1,5
111	108	103	100
570	565	529	526
286	280	255	250
57	55	52	49

ENGINE MODEL: 6BT5.9-G2  
 DATA SHEET: DS-6BT5  
 Date: November 2008