Dongfeng Cummins

Techical Operations

DieselMotores S.A.

REPUESTOS Y MOTORES

ENGINE MODEL： 6LTAA8.9-G3

CURVE & DATASHEET： FR94652

REV 00 MAY2014

Generator Engine Performance Data	Basic Engine Model:	FR94652 @ 1500 RPM &1800RPM		
DONGFENG CUMMINS ENGINE Co.,LTD Xiangfan, Hubei Province, China http://www.dcec.com.cn	**6LTAA8.9-G3** **FR94652**	Configuration D563015GX03	CPL Code CPL: 3076	Revision 2013/11/30

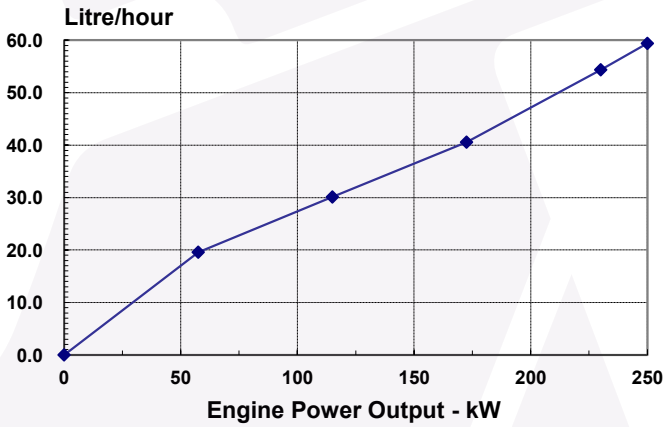
Compression Ratio:	**16.6:1**	Aspiration:	**Turbocharged and Charge Air Cooled**
Bore:	**114 mm**	Displacement:	**8.9 L**
Storke:	**145 mm**	No. of Cylinders:	**6**
Emission Certification:	**None**	Fuel System:	**BYC P7100/Electronic Governor**
Governor Regulation:	**⩽5%**		

All data is based on the engine operating with fuel system, water pump, and 14.5 in H_2O (3.7 kPa) inlet air restriction with 5.98 in (152mm) inner diameter, and with 2.95 in Hg (10 kPa) exhaust restriction with 4.02 in (102 mm) inner diameter; not included are alternator, fan, optional equipment and driven components. Coolant flows and heat rejection data based on coolants as 50% ethylene glycol/50% water. All data is subject to change without notice.

Engine Speed	Standby Power		Prime Power		Continuous Power	
RPM	kW	HP	kW	HP	kW	HP
1500	250	335	230	308	none	none
1800	282	378	255	342	none	none

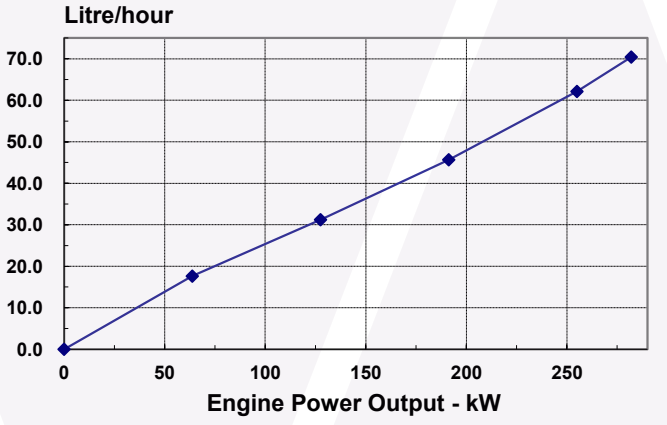
Engine Performance Data @ 1500 RPM

OUTPUT POWER			FUEL CONSUMPTION	
%	kW	HP	g/kW.h	L/h
STANDBY POWER				
100	250	335	196	59
PRIME POWER				
100	230	308	195	54
75	173	231	194	41
50	115	154	216	30
25	58	77	281	20
CONTINUOUS POWER				



Engine Performance Data @ 1800 RPM

OUTPUT POWER			FUEL CONSUMPTION	
%	kW	HP	g/kW.h	L/h
STANDBY POWER				
100	282	378	206	70
PRIME POWER				
100	255	342	201	62
75	191	256	197	46
50	128	171	202	31
25	64	85	228	18
CONTINUOUS POWER				



Curves shown above represent gross engine performance capabilities obtained and corrected in accordance with GB/T18297 conditions of 100kPa (29.61 in. Hg) barometric pressure , 25°C (77°F) inlet air temperature, and 1 kPa (0.30 in. Hg) water vapor pressure.

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.

Above Source From CUMMINS AEB 26.02

GENERAL ENGINE DATA

Approximate Engine Weight (wet)	-kg	650
Mass Moment of Inertia of Rotating Components (No Flywheel)	-kg·m^2	0.72
Center of Gravity from Rear Face of Block	-mm	427
Center of Gravity above Crankshaft Centerline	-mm	163
Engine Idle Speed	-RPM	900-1100
Fire Order		1-5-3-6-2-4

ENGINE MOUNTING

Maximum (Static) Bending Moment at Rear Face of Block	-N.m	1356

EXHAUST SYSTEM

Maximum Back Pressure	-kPa	10

AIR INTAKE SYSTEM

Maximum Intake Air Restriction with Heavy Duty Air Cleaner		
— Dirty Element	-kPa	3.7
— Clean Element	-kPa	6.2

CHARGE AIR COOLING SYSTEM

Maximum Temp. Rise Between Engine Air Intake and Intake Manifold	-˚C	25
Maximum Air Pressure Drop from Turbo Air outlet to Intake Manifold		
— 1500RPM	-kPa	13
— 1800RPM	-kPa	13
Maximum Intake Manifold Temperature Differential (Ambient to IMT) (IMTD)	-˚C	50
Maximum Intake Manifold Temperature for engine protection (Warning Threshold)	-˚C	58

LUBRICATION SYSTEM

Minimum Engine Oil Pressure for Engine Protection Devices:		
— Idle Speed	-kPa	103
— Governed Speed	-kPa	276-414
Maximum Oil Temperature	-˚C	121
Minimum Required Lube System Capacity - Sump plus Filters	-litre	27.6

FUEL SYSTEM

Type Injection System		BYC P7100 Direct Injection
Maximum Restriction at Lift Pump	-kPa	13.6
Maximum Fuel Flow on the Supply Side of the Fuel Pump	-litre/hr	208
Maximum Fuel Inlet Temperature	-˚C	42
Maximum Allowable Head on Injector Return Line	-kPa	33.9

COOLING SYSTEM

Coolant Capacity - Engine Only	-litre	11.1
Maximum Coolant Friction Head External to Engine.. -1800 rpm	-kPa	35
-1500 rpm	-kPa	28
Maximum Static Head of Coolant Above Engine Crank Centerline	-m	18.3
Standard Thermostat (Modulating) Range	-˚C	82 - 95
Minimum Pressure Cap	-kPa	103
Maximum Top Tank Temperature for Standby / Prime Power	-˚C	104 / 100

ELECTRICAL SYSTEM

Cranking Motor (Heavy Duty, Positive Engagement)	-volt	12V	24V
Battery Charging System, Negative Ground	-ampere	63	40
Maximum Allowable Resistance of Cranking Circuit	-ohm	0.001	0.002
Minimum Recommended Battery Capacity			
—Cold Soak @ 0 to 32-F (-18 to 0-C)	-0°F CCA	1500	(750)

EMISSIONS

Gaseous Emissions per GB 20891-2007, at 1500rpm：

- —Weight-Specific NOx..... g/kW.h
- —Weight-Specific HC..... g/kW.h
- —Weight-Specific CO..... g/kW.h
- —Weight-Specific Particulates..... g/kW.h

Gaseous Emissions per GB 20891-2007, at 1800rpm：

- —Weight-Specific NOx..... g/kW.h
- —Weight-Specific HC..... g/kW.h
- —Weight-Specific CO..... g/kW.h
- —Weight-Specific Particulates..... g/kW.h

Fuel Rating Option used for these Data: **FR94652**

	STANDBY POWER		PRIME POWER	
Governed Engine Speed..... -rpm	1800	1500	1800	1500
Engine Idle Speed..... -rpm	900 - 1100	900 - 1100	900 - 1100	900 - 1100
Gross Engine Power Output..... -kW	282	250	255	230
Piston Speed..... -m/s	8.7	7.3	8.7	7.3
Friction Horsepower..... -kW	35	26	35	26
Engine Water Flow to Engine:..... -litre/sec.	4	3.3	4	3.3
Intake Air Flow..... -litre/sec.	315	235	292	216
Exhaust Gas Flow..... -litre/sec.	838	643	735	584
Exhaust Gas Temperature..... -˚C	520	542	477	533
Air to Fuel Ratio..... -air:fuel	25.1 : 1	22.2: 1	26.4 : 1	22.3 : 1
Radiated Heat to Ambient..... -kW	TBD	TBD	TBD	TBD
Heat Rejection to Coolant..... -kW	TBD	TBD	TBD	TBD
Heat Rejection to Fuel..... -kW	TBD	TBD	TBD	TBD

ALL DATA CERTIFIED WITHIN 5%

TBD = To Be Decided N/A = Not Applicable N.A. = Not Available

All data is subject to change without notice, sorry for inform.

Dongfeng Cummins Engine Co., Ltd.