

DATA SHEET

DIESEL GENERATOR 74KW

MODEL#FDK-CD95/H1

50HZ/1500RPM

CUMMINS MODEL: 6BT5.9G2



General Features:

- ♦ All qualified generator sets are subjected to a comprehensive performance test which includes 50% load, 70% load, 100% load, 110% load and to check, verify that all control systems, alarm and shut-down protection.
- ♦ Equipped with battery charger and 24V high performance maintenance-free lead-acid starting batteries and connecting cables.
- ♦ Stainless galvanized zinc plates with strong corrosion-proof.
- ♦ Vibration isolators between the engine/alternator and base frame.
- ♦ Equipped with industrial silencer and flexible exhaust hose.
- ♦ Designed to comply with ISO8528/GB2820.
- ♦ Powered by Cummins engine and coupled with Stamford alternator.
- ♦ Water jacket preheater, oil heater and double air cleaner, etc. are available.

FDK Diesel Generator Set Data

Genset Model	FDK-CD95/H1	Engine Make	Cummins
Prime Power	68KW/85KVA	Engine Model	6BT5.9G2
Standby Power	74KW/93KVA	Alternator model	Stamford UCI224G
Output Frequency / Rated speed	50Hz/1500rpm	Control System	DSE6020
Rated Voltage	230V/400V	Phase	Three

(1) **Prime power:** The rating is available for an unlimited of annual operating hours in variable load applications, in accordance with ISO8528-1.A 10% overload is available for a period of 1 hour within 12-hour period of operation, in accordance with ISO 3046-1.

(2) **Standby power:** The rating is applicable for supplying emergency power in variable load applications for up to 200 hours per year in accordance with ISO8528-1. Overload is not allowed.

(3) **Rated voltage:** available with customer requirement.

Engine Specifications (DETAILED in APPENDIX)

Engine Model	6BT5.9G2	Aspiration	Turbo-charged
Engine Manufacturer	Cummins (China Dongfeng)	Bore x Stroke (mm x mm)	102×120
Cylinder quantity	6	Displacement	5.9L
Cylinder Arrangement	Not available	Compression Ratio	17.3:1
Cycle	Four stroke	Prime power / Speed (KW/RPM)	86/1500
		Standby power/ Speed (KW/RPM)	92/1500



Speed governor	Electronic	Fuel Consumption at 100% load (g/KWh)	208 at 1500rpm
Piston Speed	6.0m/s	Starter motor	DC24V
Friction Energy Output	12.7kw	Alternator	DC24V
Total Lubrication System Capacity (L)	16.4	Low idle	950-1050rpm
Coolant Capacity (L)	9.9		

Alternator Specifications

Alternator model	UCI224G	Number of phase	3
Alternator manufacturer	STAMFORD	Rated voltage	400V (Available with custom requirements)
Exciter type	Single bearing, Brushless, Self-excited	Power factor	0.8
Rated output prime power	85 KVA	Voltage regulation NL-FL	≤±1%
Rated speed	1500 rpm	Insulation grade	H
Rated frequency	50Hz	Protection grade	IP23

Alternator option: Leroy Somer, MECC, Marathon, Engga, Faraday

Control System DSE6020 (DETAILED in INSTRUCTION)

DSE6020 is an advanced control module based on micro-processor, containing all necessary functions for protection of the genset and the breaker control. It can monitor the mains supply, breaker control and automatically start the engine when the mains are abnormal. Accurately measure various operational parameters and display all values and alarms information on the LCD. In addition, the control module can automatically shut down the engine and indicate the engine failure.

FEATURES

- ◆ Microprocessor control, with high stability and credibility.
- ◆ Monitoring and measuring operational parameters of the mains supply and genset.
- ◆ Indicating operation status, fault conditions, all parameters and alarms.
- ◆ Multiple protections; multiple parameters display, like pressure, temp. etc.
- ◆ Manual, automatic and remote work mode selectable.
- ◆ Real time clock for time and date display, overall runtime display, 250 log entries.
- ◆ Overall power output display.
- ◆ Integral speed/frequency detecting, telling status of start, rated operation, overspeed etc.
- ◆ Communication with PC via RS485 OR RS232 interface, using MODBUS protocol.

Soundproof Enclosure Specification

FDK silent generator is designed by professional acoustic engineers based on years of experience. Now we can make the noise of the generator less than 80-85dB(A) at 1m, or 70-75dB(A) at 7m, 60-65dB(A) at 15m.

FEATURES

- ◆ Multi-way air intake and exhaust guarantee the power performance of the generator.
- ◆ Large-scale impedance combined type silencer effectively reduce noise of the generator.
- ◆ Internal high performance rubber damper and flexible materials reduce vibration.
- ◆ Base mounted fuel tank supports the generator running for 8 hours.



ISO9001:2008

FDK reserves the right to change the specifications and designs without notice.

Optional

Generator set	Alternator	Low environment Temp	ATS
<input type="checkbox"/> Open generator set <input type="checkbox"/> Silent generator set <input type="checkbox"/> Trailer generator set <input type="checkbox"/> ABB MCCB circuit breaker	<input type="checkbox"/> Stamford <input type="checkbox"/> Marathon <input type="checkbox"/> Mecc Alte <input type="checkbox"/> Leroy Somer <input type="checkbox"/> Farady <input type="checkbox"/> Engga	<input type="checkbox"/> Water heater <input type="checkbox"/> Oil heater <input type="checkbox"/> Battery heater	<input type="checkbox"/> CHINT <input type="checkbox"/> SCHNEIDER <input type="checkbox"/> ABB
Fuel system	Control system	Voltage	Synchronized system
<input type="checkbox"/> 12hrs base tank <input type="checkbox"/> 24hrs base tank <input type="checkbox"/> Dual wall base fuel tank <input type="checkbox"/> Outside fuel tank	<input type="checkbox"/> AMF function <input type="checkbox"/> ATS control cabinet <input type="checkbox"/> DSE7320 <input type="checkbox"/> DSE7510 <input type="checkbox"/> GU620A	<input type="checkbox"/> 415/240V <input type="checkbox"/> 400/230V <input type="checkbox"/> 380/220V <input type="checkbox"/> 220/127V <input type="checkbox"/> 200/115V	<input type="checkbox"/> CHINT Cabinet <input type="checkbox"/> SCHNEIDER Cabinet <input type="checkbox"/> DSE8610 Module <input type="checkbox"/> COMAQ Module <input type="checkbox"/> DEIF Module

Dimension & Weight

Open

Overall Size: L×W×H (mm)	2250×800×1300
Weight (kg)	1040

Soundproof Version

Overall Size: L×W×H (mm)	3200×1130×1715
Weight (kg)	1720

Sales Promises

- ◆ FDK provides a full line of brand new and high quality products. Each and every unit is strictly factory tested before shipment.
- ◆ Quality warranty is according to our standard conditions: 12 months from BL date or 1000 running hours, whichever comes first.
- ◆ Service and parts are available from FDK or distributors in your location.
- ◆ FDK guarantee use **BRAND NEW & GENUINE MACHINE.**



Dongfeng Cummins Technical Operations



ENGINE MODEL: 6BT5.9-G2
CURVE & DATASHEET: FR93146



Generator Engine Performance Data

DONGFENG CUMMINS ENGINE Co.,LTD

Xiangfan, Hubei Province, China
<http://www.dcec.com.cn>

Basic Engine Model:

6BT5.9-G2

FR93146

FR93146 @ 1500 RPM &1800RPM

Configuration
D402078GX02

CPL Code
CPL: 3076

Revision
2013/10/15

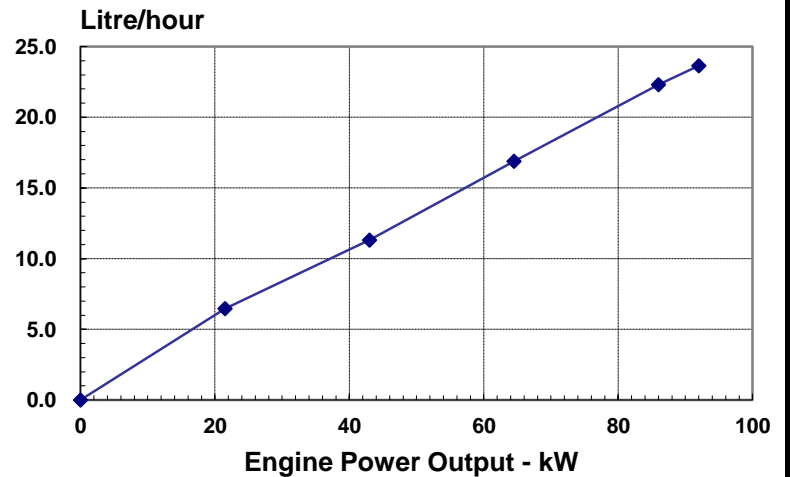
Compression Ratio:	17.3:1	Aspiration:	Turbocharger
Bore:	102 mm	Displacement:	5.9 L
Stroke:	120 mm	No. of Cylinders:	6
Emission Certification:		Fuel System:	BYC A/Electronic Governor
Governor Regulation:	≤5%		

All data is based on the engine operating with fuel system, water pump, and 14.8 in H₂O (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 RPM	Standby Power		Prime Power		Continuous Power	
	kW	HP	kW	HP	kW	HP
1500	92	123	86	115		
1800	110	147	100	133		

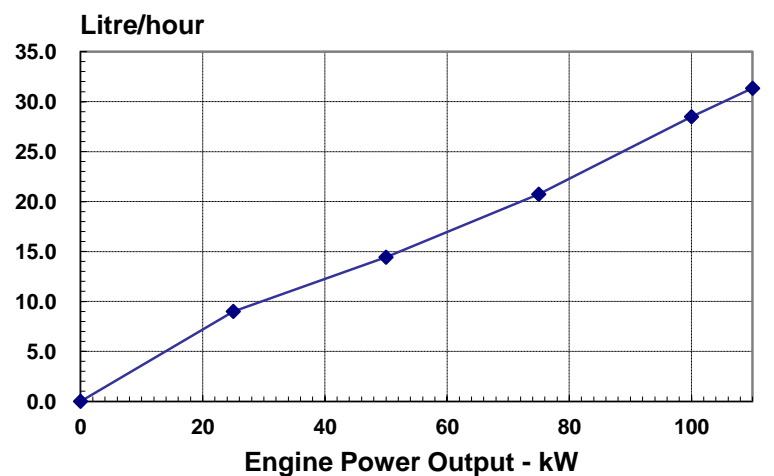
Engine Performance Data @ 1500 RPM

OUTPUT POWER			FUEL CONSUMPTION	
%	kW	HP	g/kW.h	L/h
STANDBY POWER				
100	92	123	212	23.6
PRIME POWER				
100	86	115	214	22.3
75	64.5	86	216	16.9
50	43	58	217	11.3
25	21.5	29	248	6.5
CONTINUOUS POWER				



Engine Performance Data @ 1800 RPM

OUTPUT POWER			FUEL CONSUMPTION	
%	kW	HP	g/kW.h	L/h
STANDBY POWER				
100	110	147	235	31.3
PRIME POWER				
100	100	133	235	28.5
75	75	100	228	20.7
50	50	67	238	14.4
25	25	33	297	9.0
CONTINUOUS POWER				



Curves shown above represent gross engine performance capabilities obtained and corrected in accordance with GB/T18297 conditions of 99kPa (29.61 in. Hg) barometric pressure, 25°C (77°F) inlet air temperature, and 1 kPa (0.30 in. Hg) water vapor pressure with No.0 diesel fuel.

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

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	0.00075	0.002
Minimum Recommended Battery Capacity			
—Cold Soak @ 0 to 32-F (-18 to 0-C).....	-0°F CCA	625	312

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: **FR93146**

Governed Engine Speed.....	-rpm
Engine Idle Speed.....	-rpm
Gross Engine Power Output.....	-kW
Piston Speed.....	-m/s
Friction Horsepower.....	-kW
Engine Water Flow to Engine:.....	-litre/sec.
Intake Air Flow.....	-litre/sec.
Exhaust Gas Flow.....	-litre/sec.
Exhaust Gas Temperature.....	-°C
Radiated Heat to Ambient.....	-kW
Heat Rejection to Coolant.....	-kW
Heat Rejection to Fuel.....	-kW

STANDBY POWER		PRIME POWER	
1800	1500	1800	1500
750-850	750-850	750-850	750-850
110	92	100	86
7.2	6.0	7.2	6.0
12.7	12.7	12.7	12.7
2.8	2.0	2.8	2.0
112	108	111	100
319	280	312	250
577	565	564	526
21	21	19	19
71	61	68	54
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.