FDK ENERGY

GUANGDONG FUDIANKANG DIESEL GENSET CO., LTD
SHENZHEN FUDIANKANG DIESEL GENSET CO., LTD
Tel: 86-13710087995
Web: www.fdkenergy.com Email: info@fdkenergy.com

DATA SHEET

DIESEL GENERATOR 300KW
MODEL#FDK-CC375/H2
60HZ/1800RPM
CUMMINS MODEL: NTA855-G1B

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-CC375/H2	Engine Make	Cummins
Prime Power	275KW/344KVA	Engine Model	NTA855-G1B
Standby Power	300KW/375KVA	Alternator model	Stamford HCI444D
Output Frequency / Rated speed	60Hz/1800rpm	Control System	DSE7320
Rated Voltage	277V/480V	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	NTA855-G1B	Aspiration	Turbo-charged
Engine Manufacturer	Cummins (CCEC CHINA)	Bore x Stroke (mm x mm)	140×152
		Displacement	14L
Cylinder quantity	6	Compression Ratio	14.0:1
Cylinder Arrangement	In-line	Prime power / Speed (KW/RPM)	313/1800
Cycle	4	Standby power/ Speed (KW/RPM)	347/1800

CE ISO9001:2008

Type Injection System	Direct injection Cummins PT	Fuel Consumption at 100% load (L/HOUR)	80.5 at 1800rpm
Piston Speed	9.14m/s	Starter motor	24V
Friction Energy Output	35kw	Low idle	575-650rpm
Total Lubrication System Capacity (L)	38.6	Coolant Capacity (L)	20.8L

Alternator Specifications

Alternator model	HCI444D	Number of phase	3
Alternator manufacturer	STAMFORD	Rated voltage	480V (Available with custom requirements)
Exciter type	Single bearing, Brushless, Self-excited	Power factor	0.8
Rated output prime power	375KVA	Voltage regulation NL-FL	≤±1%
Rated speed	1800 rpm	Insulation grade	H
Rated frequency	60Hz	Protection grade	IP23

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

Control System DSE7320 (DETAILED in INSTRUCTION)

DSE7320 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.

Optional

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

Dimension & Weight

Open

Overall Size: L×W×H (mm)	3050×1060×1900
Weight (kg)	2600

Soundproof Version

Overall Size: L×W×H (mm)	4800×1350×2350
Weight (kg)	3400

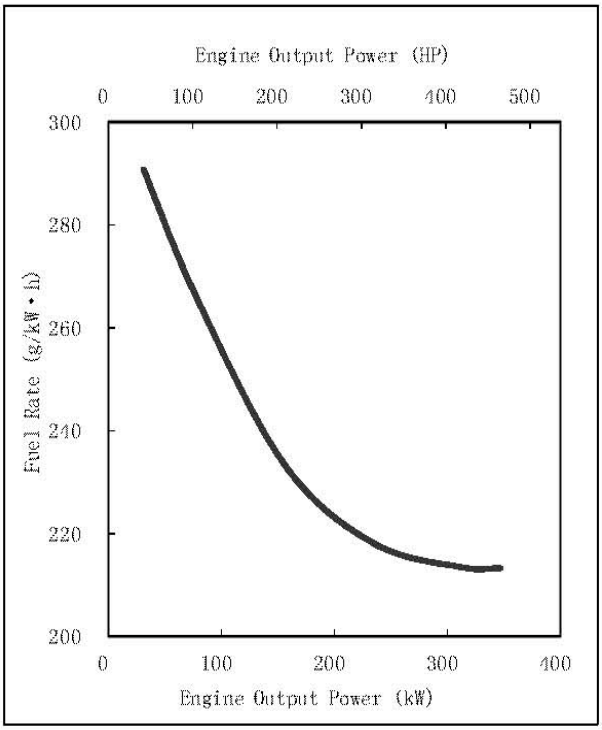
Sales Promises

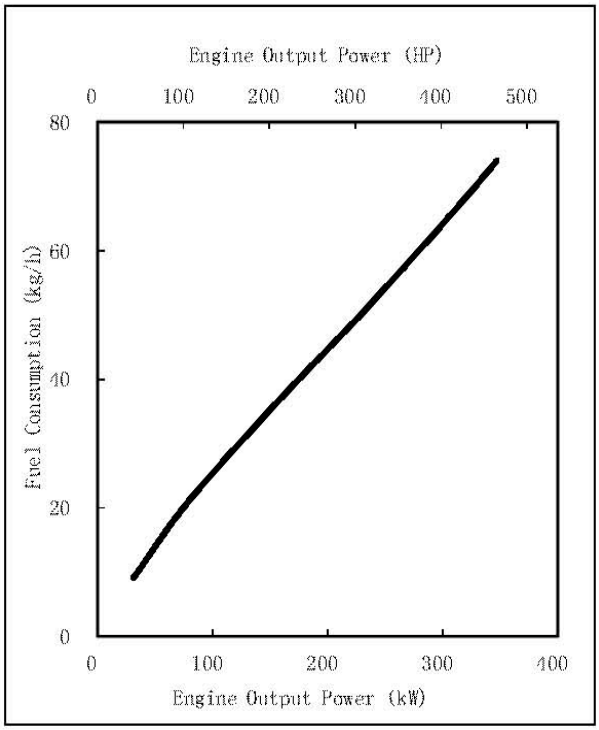
- FDK provides a full line of brand new and high quality products. Each and every unit is strictly factory tested before shipment.
- Quality warranty is according to our standard conditions: 12 months from BL date or 1000 running hours, whichever comes first.
- Service and parts are available from FDK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

CCEC	CHONGQING CUMMINS ENGINE **PERFORMANCE CURVE**	Engine Model **NTA855-G1B**		Curve No. **C-0869A**	Date **2010-1-27**
		CPL Code **3550**	Data Sheet **C-0869A**	Emission Level	

Displacement:	**14L**	**[855 in.^{3}]**	Cylinders:	**6**	Fuel System: **PT**
Bore:	**140mm**	**[5.50 in.]**	Speed:	**1800 r/min**	Cfg. Number: **D093517DX02**
Stroke:	**152mm**	**[6.00in.]**	Aspiration:	**Turbocharged & Aftercooled**	

Standby Power		Prime Power		Continuous Power	
kW	HP	kW	HP	kW	HP
347	465	313	420		





	Output Power		Fuel Consumption		Fuel Rate
	HP	kW	kg/h	L/h	g/kW-h
Standby100%	465	347	74.0	89.2	213.3
100%	420	313	66.8	80.5	213.4
75%	315	235	51.2	61.7	218.1
50%	210	157	36.5	44.0	233.2
25%	105	78	20.8	25.1	265.8
10%	42	31	9.1	11.0	290.7

All data is based on :

--Engine Operating with fuel system, water pump, lubricating oil pump, air cleaner and exhaust silencer, fan, and optional driven components.

--Engine operating with fuel corresponding to grade No.2-D per ASTM D975.

--ISO 3046, Part1, Standard Reference Conditions of : Barometric Pressure:100kPa(29.5in.Hg);Air Temperature: 25°C (77°F) ; Relative Humidity: 30% .

STAUS FOR CURVES AND DATA:

TOLERANCE：+/-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 5000 ft. (1525 m) and 104 °F (40 °C) without power deration.

1500 RPM up to 5000 ft. (1525 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 1% per 10 °F (2% per 11 °C).

Chongqing Cummins Engine Co. Ltd.

Engine Data Sheet

MODEL: NTA855-G1B **DATA SHEET: C-0869A**
NFIGURATION NO.: D093517DX02 **PERFORMANCE CURVE: C-0869A**
CPL NUMBER: 3550 **INSTALLATION DIAGRAM: 4915105**
PRIME POWER: 420 HP (313 kW) at 1800 r/min **DATE: 2010/1/26**
STANDBY POWER: 465 HP (347 kW) at 1800 r/min EMISSION LEVEL:

GENERAL ENGINE DATA

Type	4-Cycle;In-line;6-Cylinder	
Aspiration	Turbocharged,Aftercooled	
Bore x Stroke - in.×in. (mm×mm)	5.5 ×6	(140 × 152)
Displacement - $in.^3$(L)	855	(14)
Compression Ratio	14.0:1	
Firing Order	1-5-3-6-2-4	
Dry Weight		
--Fan to Flywheel Engine - lb. (kg)	2870	(1300)
--Heat Exchanger Cooled Engine - lb. (kg)	3095	(1410)
Wet Weight		
--Fan to Flywheel Engine - lb. (kg)	2970	(1350)
--Heat Exchanger Cooled Engine - lb. (kg)	3320	(1510)
Moment of Inertia of Rotating Components - With FW1109 flywheel - $lb.\cdot ft.^2$ ($kg\cdot m^2$)	118.5	(4.99)
Center of Gravity from Rear Face of Flywheel Housing - in.(mm)	27.7	(704)
Center of Gravity Above Crankshaft Centerline - in.(mm)	5.5	(140)

ENGINE MOUNTING

Maximum Allowable Bending Moment at Rear Face of Block - $lb.\cdot ft.$ ($N\cdot m$)	1000	(1356)

EXHAUST SYSTEM

Maximum Allowable Back Pressure - in.Hg (kPa)	3.0	(10)
Standard Exhaust Pipe Diameter - in. (mm)	5.0	(127)

AIR INDUCTION SYSTEM

Maximum Allowable Intake Air Restriction		
--With Clean Filter Element - in. H_2O (kPa)	15	(3.74)
--With Dirty Filter Element - in. H_2O (kPa)	25	(6.22)
Minimum Dirt Holding Capacity - g/CFM (g/L/s)	25	(53)
Maximum Allowable Intake Air Temperature ΔT - °F (°C)	30	(17)

COOLING SYSTEM

Coolant Capacity - Engine Only - U.S. gal (L)	5.5	(20.8)
- With Radiator - U.S. gal (L)	16.0	(60.6)
- With Heat Exchanger - U.S. gal (L)	13.0	(49.2)
Maximum Coolant Friction Head External to Engine - PSI (kPa)	7	(48)
Maximum Coolant Pressure (exclusive of Pressure Cap) - PSI (kPa)	40	(276)
Maximum Static Head of Coolant Above Engine Crank Centerline -ft. (m)	46	(14.0)
Standard Thermostat (Modulating) Range - °F (°C)	180 - 202	(82 - 94)
Minimum Allowable Pressure Cap -PSI (kPa)	7.0	(48.2)
Maximum Coolant Temperature - °F (°C)	205	(96)
Maximum Top Tank Temperature - °F (°C)	212	(100)
Minimum Top Tank Temperature - °F (°C)	160	(71)
Maximum Allowable Top Tank Temperature for Standby / Prime Power - °F (°C)	220 / 212	(104 / 100)
Minimum Recommended Top Tank Temperature - °F (°C)	160	(71)
Minimum Coolant Expansion Space - % of System Capacity	5	
Minimum Coolant Makeup Capacity - U.S. gal (L)	1.1	(4.2)
Maximum Raw Water Pressure at Engine Outlet -PSI (kPa)	15	(103)
Maximum Inlet Restriction at Raw Water Pump - in.Hg (kPa)	10	(34)

Maximum Raw Water Pump Initial Suction Lift- ft. (m).....	3.05	(10)
Minimum Raw Water Pipe Size - in. (mm).....	2	(51)
Allowable Pressure Drop Across Keel Cooler -PSI (kPa).....	4	(28)

LUBRICATION SYSTEM

Oil Pressure @ Idle Speed - PSI (kPa).....	15 Min	(103) Min
@ Governed Speed - PSI (kPa).....	35-50	(241 - 345)
Maximum Allowable Oil Temperature - °F (°C).....	250	(121)
Maximum Oil Consumption - U.S.qt./h (L/h).....	0.25	(0.24)
Oil Pan Capacity - Low / High - U.S. gal. (L).....	7.5 / 9.5	(28.4 / 36.0)
Total System Capacity - U.S. gal. (L).....	10.2	(38.6)
Angularity of Oil Pan - Front Down/Front Up/Side to Side.....	38°/38°/38°	

FUEL SYSTEM

Type Injection System.....	Direct Injection Cummins PT	
Maximum Allowable Restriction to Fuel Pump		
-- With Clean Fuel Filter - in.Hg (kPa).....	4.0	(13.5)
-- With Dirty Fuel Filter - in.Hg (kPa).....	8.0	(27.1)
Maximum Allowable Head on Injector Return Line		
-- With Check Valve - in.Hg (kPa).....	6.5	(22.0)
-- Without Check Valve - in.Hg (kPa).....	2.5	(8.5)
Minimum Fuel Supply Line Size - in. (mm).....	0.625	(16)
Minimum Fuel Return Line Size - in. (mm).....	0.5	(13)
Maximum Fuel Pump Supply - U.S.gal/h (L).....	93	(352)
Fuel Rail Pressure - PSI (kPa).....	203	(1399.5)
Maximum Fuel Temperature °F (°C).....	160	(71)

ELECTRICAL SYSTEM

Minimum Recommended Battery Capacity (24V)		
-- Cold Soak (No Load) - CCA.....	900	
- Minimum Reserved Capacity - CCA.....	320	
-- Cold Soak (With Load) - CCA.....	900	
- Minimum Reserved Capacity - CCA.....	320	
Maximum Allowable Resistance of Cranking Circuit - ohm.....	0.002	
Standard Cranking Motor (Heavy Duty , Positive Engagement) - volt.....	24	
Standard Battery Charging System , Negative Ground - ampere.....	35	

PERFORMANCE DATA

Idle Speed - r/min	575 - 650	
Maximum No-Load Governed Speed - r/min	2200	
Maximum over Speed Capability - r/min	2700	
Minimum Crankshaft Rotation for unaided Cold Start - r/min.....	150	
Minimum Torque for unaided Cold Start - lb.·ft. (N·m).....	375	(509)
Exhaust Sound Pressure at 1m from Exhaust Outlet -1500r/min -dBA.....	N/A	

All data is based on :

--Engine Operating with fuel system, water pump, lubricating oil pump, air cleaner and exhaust silencer, fan, and optional driven components.

--Engine operating with fuel corresponding to grade No.2-D per **ASTM D975**.

--**ISO 3046**, Part1, Standard Reference Conditions of : Barometric Pressure:100kPa(29.5in.Hg); Air Temperature: 25°C (77°F) ; Relative Humidity: 30% .

--This Data Sheet includes both air-cooled (Fan/Radiator) & raw water cooled (Heatexchanger/Raw Water Pump) type engine.

	Prime Power		Standby Power	
	60Hz		60Hz	
Governed Engine Speed - r/min	1800		1800	
Gross Engine Power Output - HP (kW)	420	(313)	465	(347)
Torque lb.·ft. (N·m)	1225	(1661)	1358	(1841)
Brake Mean Effective Pressure - PSI (kPa)	216	(1490)	239	(1652)
Piston Speed - ft./min (m/s)	1799	(9.14)	1799	(9.14)
Friction Horsepower - HP (kW)	47	(35)	47	(35)
Intake Air Flow - CFM (L/s)	950	(448)	980	(463)
Engine Water Flow - GPM (L/min.)	95	(6)	95	(6)
Raw Water Flow - GPM (L/s)	62	(3.9)	62	(3.9)
Fuel Consumption - U.S.gal/h (L/h)	21.3	(81)	23.6	(89)
Oil Flow - GPM (L/s)	42	(2.6)	42	(2.6)
Exhaust Gas Temperature (After Turbine) - °F (°C)	870	(466)	900	(482)
Exhaust Gas Flow (After Turbine) - CFM (L/s)	2435	(1149)	2570	(1213)
Air to Fuel Ratio	26.4 : 1		24.7 : 1	
Heat Radiation - BTU (kW)	2230	(39)	2470	(43)
Heat Rejection to Coolant - BTU (kW)	13360	(235)	14810	(260)
Heat Rejection to Ambient - BTU (kW)	11130	(196)	12340	(217)

Engine Model: NTA855-G1B
Data Sheet: C-0869A
Date: 2010/1/26

CHONGQING CUMMINS ENGINE CO. LTD, CHONGQING, CHINA, 400031