SHENZHEN FUDIANKANG ENERGY CO., LTD
GUANGZHOU SANQ DIESEL GENERATOR SET CO., LTD
Tel:86-13729889887 Fax:86-20-84550026
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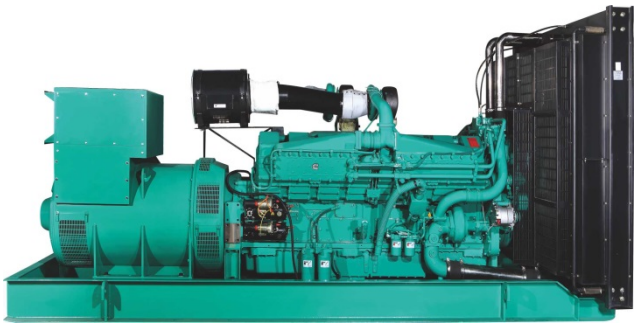
DATA SHEET

DIESEL GENERATOR 505KW
MODEL#FDK-CC505/H1
50HZ/1500RPM
CUMMINS MODEL: KTA19-G8



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-CC505/H1	Engine Make	Cummins
Prime Power	450KW/563KVA	Engine Model	KTA19-G8
Standby Power	505KW/631KVA	Alternator model	Stamford HCI544E
Output Frequency / Rated speed	50Hz/1500rpm	Control System	DSE7320
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	KTA19-G8	Aspiration	Turbo-charged
Engine Manufacturer	Cummins (CCEC CHINA)	Bore x Stroke (mm x mm)	159×159
		Displacement	18.9L
Cylinder quantity	6	Compression Ratio	13.9:1
Cylinder Arrangement	In-line	Prime power / Speed (KW/RPM)	N.A.
Cycle	4	Standby power/ Speed (KW/RPM)	575/1500

CE ISO9001:2008 FDK reserves the right to change the specifications and designs without noice.

Type Injection System	Direct injection Cummins PT	Fuel Consumption at 100% load (L/HOUR)	137 at 1500rpm
Piston Speed	7.9m/s	Starter motor	DC24V
Friction Energy Output	45kw	Low idle	675-775rpm
Total Lubrication System Capacity (L)	50	Coolant Capacity (L)	30L

Alternator Specifications

Alternator model	HCI544E	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	600KVA	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 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)	3200×1280×1950
Weight (kg)	3650

Soundproof Version

Overall Size: L×W×H (mm)	5100×1800×2350
Weight (kg)	5300

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.**

KTA19-G8 Advantage Data Sheet

Cummins Inc. Columbus, Indiana 47201

Curve Number: **FR-**4428	Engine Critical Parts List: **CPL- 8685**	Date: **8July04**
Displacement: **18.9**litre (**1150** in^3)	Bore: **159** mm (**6.25** in.)	Stroke: **159** mm (**6.25** in.)
No. of Cylinders: **6**	Aspiration: **Turbocharged and Aftercooled**	

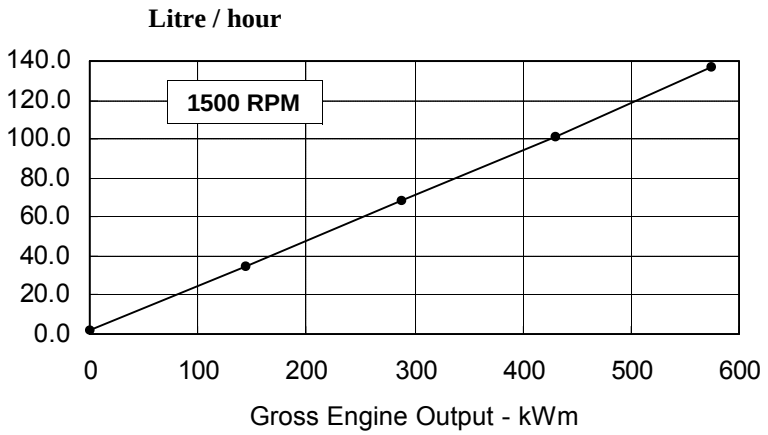
Emergency Standby Ratings for Application in Corporate Generator Sets Only

Engine Ratings:

Engine Speed	Standby Power	
RPM	kWm	BHP
1500	575	771

Engine Performance Data @ 1500 RPM

OUTPUT POWER			FUEL CONSUMPTION			
%	kWm	BHP	kg/ kWm·h	lb/ BHP·h	litre/ hour	U.S. Gal/ hour
STANDBY POWER						
100	575	771	0.203	0.334	137	36.3
75	431	578	0.200	0.327	101	26.7
50	288	386	0.202	0.330	68	18.0
25	144	193	0.208	0.336	35	9.3



CONVERSIONS: (Litres = U.S. Gal x 3.785) (kWm = BHP x 0.746) (U.S. Gal = Litres x 0.2642) (BHP = kWm x 1.34)

Data shown above represent gross engine performance capabilities obtained and corrected in accordance with ISO-3046 conditions of 100 kPa (29.53 in Hg) barometric pressure [110 m (361 ft) altitude], 25 °C (77 °F) air inlet temperature, and relative humidity of 30% with No. 2 diesel or a fuel corresponding to ASTM D2.

See reverse side for application rating guidelines.

The fuel consumption data is based on No. 2 diesel fuel weight at 0.85 kg/litre (7.1 lbs/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.

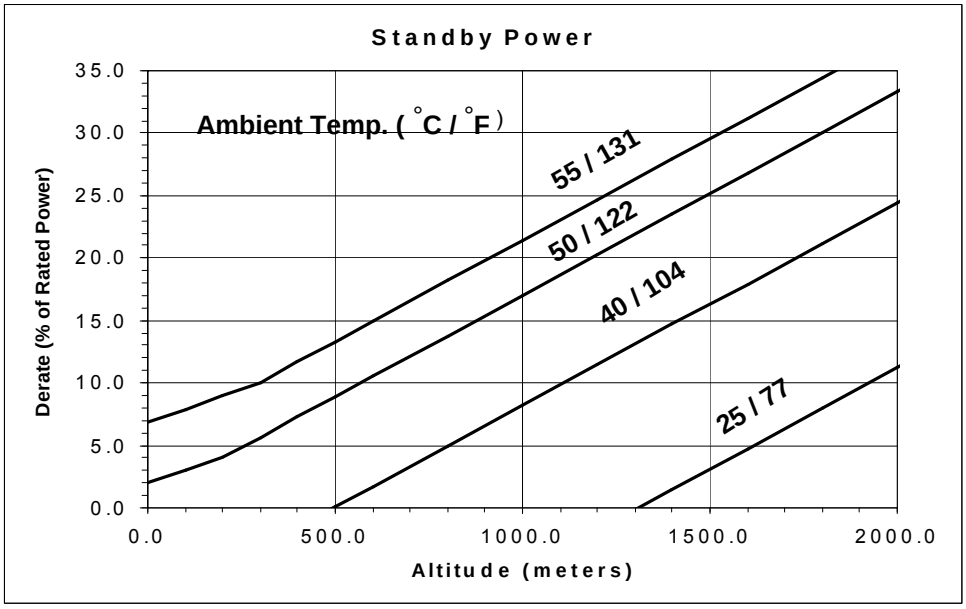
TECHNICAL DATA DEPT. **CERTIFIED WITHIN** **CHIEF ENGINEER**

POWER RATING APPLICATION GUIDELINES FOR EMERGENCY STANDBY ENGINES FOR APPLICATION IN CORPORATE GENERATOR SETS ONLY

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

Applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this standby rating. Under no condition is an engine allowed to operate in parallel with the public utility at the Emergency Standby Power rating. This rating should be applied where reliable utility power is available. An emergency standby rated engine should be sized for a maximum of an **70%** typical load factor and **200 hours** of operation per year. This includes a maximum of **1 hour** in a **12 hour** period at the Emergency Standby Power rating. Emergency Standby rating should never be applied except in true emergency power outages. Negotiated power outages contracted with a utility company are not considered an emergency.

Operation At Elevated Temperature And Altitude:
For sustained operation above these conditions, derate by an additional 4.9% per 300 m (1000 ft), and 9.7% per 10° C (18° F)



KTA19-G8 Advantage Data Sheet

Cummins Inc. Columbus, Indiana 47201

Cummins Inc.

Engine data Sheet

DATA SHEET: DS-4428
Date: 8July04
PERFORMANCE CURVE: FR-4428

ENGINE MODEL : KTA19-G8 **CONFIGURATION NUMBER:** D193091DX02

INSTALLATION DIAGRAM
Fan to Flywheel: 3626008

CPL NUMBER
Engine Critical Parts List:New

GENERAL ENGINE DATA

Type	4-Cycle; In-line; 6-Cylinder Diesel	
Aspiration	Turbocharged and Aftercooled	
Bore x Stroke — in x in (mm x mm)	6.25 x 6.25 (159 x 159))	
Displacement — in^3 (litre)	1150 (18.9)	
Compression Ratio	13.9 : 1	
Dry Weight		
Fan to Flywheel Engine — lb (kg)	4085	(1855)
Heat Exchanger Cooled Engine — lb (kg)	4572	(2076)
Wet Weight		
Fan to Flywheel Engine — lb (kg)	4245	(1927)
Heat Exchanger Cooled Engine — lb (kg)	4808	(2183)
Moment of Inertia of Rotating Components		
• with FW4001 Flywheel — $lb_m \cdot ft^2$ ($kg \cdot m^2$)	170	(7.2)
• with FW 4006 Flywheel — $lb_m \cdot ft^2$ ($kg \cdot m^2$)	199	(8.4)
Center of Gravity from Rear Face of Flywheel Housing — in (mm)	28.4	(721)
Center of Gravity Above Crankshaft Centerline — in (mm)	9.0	(229)
Maximum Static Loading at Rear Main Bearing — lb (kg)	2000	(908)

ENGINE MOUNTING

Maximum Bending Moment at Rear Face of Block — lb • ft (N • m)	1000	(1356)

EXHAUST SYSTEM

Maximum Back Pressure — in Hg (mm Hg)	3	(76)

AIR INDUCTION SYSTEM

Maximum Intake Air Restriction		
• with Dirty Filter Element — in H_2O (mm H_2O)	25	(635)
• with Normal Duty Air Cleaner and Clean Filter Element — in H_2O (mm H_2O)	10	(254)
• with Heavy Duty Air Cleaner and Clean Filter Element — in H_2O (mm H_2O)	15	(381)

COOLING SYSTEM

Coolant Capacity — Engine Only — US gal (litre)	8.0	(30)
— with HX 4073 Heat Exchanger — US gal (litre)	17.5	(66)
Maximum Coolant Friction Head External to Engine — 1800 rpm — psi (kPa)	10	(69)
— 1500 rpm — psi (kPa)	8	(55)
Maximum Static Head of Coolant Above Engine Crank Centerline — ft (m)	60	(18.3)
Standard Thermostat (Modulating) Range — °F (°C)	180 - 200	(82 - 93)
Minimum Pressure Cap — psi (kPa)	10	(69)
Maximum Top Tank Temperature for Standby / Prime Power — °F (°C)	220 / 212	(104 / 100)
Minimum Raw Water Flow @ 90°F to HX 4073 Heat Exchanger — US gpm (litre / min)	54	(204)
Maximum Raw Water Inlet Pressure at HX 4073 Heat Exchanger — psi (kPa)	50	(345)

LUBRICATION SYSTEM

Oil Pressure @ Idle Speed — psi (kPa)	20	(138)
@ Governed Speed — psi (kPa)	50 - 70	(345 - 483)
Maximum Oil Temperature — °F (°C)	250	(121)
Oil Capacity with OP 4019 Oil Pan : High - Low — US gal (litre)	10 - 8.5	(38 - 32)
Total System Capacity (Including Bypass Filter) — US gal (litre)	13.2	(50)

Emergency Standby Ratings for Application in Corporate Generator Sets Only

KTA19-G8 Advantage Data Sheet

Cummins Inc. Columbus, Indiana 47201

FUEL SYSTEM

Type Injection System	Direct Injection	Cummins PT
Maximum Restriction at PT Fuel Injection Pump - with Clean Fuel Filter — in Hg (mm Hg)	4.0	(102)
- with Dirty Fuel Filter ---- in Hg (mm Hg)	8.0	(203)
Maximum Allowable Head on Injector Return Line (Consisting of Friction Head and Static Head) — in Hg (mm Hg)	6.5	(165)
Maximum Fuel Flow to Injection Pump — US gph (litre / hr)	58	(220)

ELECTRICAL SYSTEM

Cranking Motor (Heavy Duty, Positive Engagement) — volt	24
Battery Charging System, Negative Ground — ampere	40
Maximum Allowable Resistance of Cranking Circuit — ohm	0.002
Minimum Recommended Battery Capacity - Cold Soak @ 50 °F (10 °C) and Above — 0°F CCA	600
- Cold Soak @ 32 °F to 50 °F (0 °C to 10 °C)----0 °F CCA	640
- Cold Soak @ 0 °F to 32 °F (-18 °C to 0 °C)-----0 °f CCA	900

COLD START CAPABILITY

Minimum Ambient Temperature for Aided (with Coolant Heater) Cold Start within 10 seconds — °F (°C)	50	(10)
Minimum Ambient Temperature for Unaided Cold Start — °F (°C)	32	(0)

PERFORMANCE DATA

All data is based on:

- Engine operating with fuel system, water pump, lubricating oil pump, air cleaner and exhaust silencer; not included are battery charging alternator, fan, and optional driven components.
- Engine operating with fuel corresponding to grade No. 2-D per ASTM D975.
- ISO 3046, Part 1, Standard Reference Conditions of:

Barometric Pressure	: 100 kPa (29.53 in Hg)	Air Temperature	: 25 °C (77 °F)
Altitude	: 110 m (361 ft)	Relative Humidity	: 30%

Steady State Stability Band at Any Constant Load — % +/- 0.50

	STANDBY	
	60 hz	*50 hz*
Governed Engine Speed — rpm		1500
Engine Idle Speed — rpm		675 - 775
Gross Engine Power Output — BHP (kW_m)		771 (575)
Brake Mean Effective Pressure — psi (kPa)		354 (2441)
Piston Speed — ft / min (m / s)		1562 (7.9)
Friction Horsepower — HP (kW_m)		60 (45)
Engine Water Flow at Stated Friction Head External to Engine:		
• 1 psi Friction Head — US gpm (litre / s)	Not Available for 60 Hz	162 (10.2)
• Maximum Friction Head — US gpm (litre / s)		145 (9.1)
Engine Data with Dry Type Exhaust Manifold		
Intake Air Flow — cfm (litre / s)		1410 (665)
Exhaust Gas Temperature — °F (°C)		1020 (549)
Exhaust Gas Flow — cfm (litre / s)		3790 (1789)
Air to Fuel Ratio — air : fuel		23.5 : 1
Radiated Heat to Ambient — BTU / min (kW_m)		3140 (56)
Heat Rejection to Coolant — BTU / min (kW_m)		17835 (313)
Heat Rejection to Exhaust — BTU / min (kW_m)		24550 (431)

Emergency Standby Ratings for Application in Corporate Generator Sets Only

N.A. - Data is Not Available
N/A - Not Applicable to this Engine
TBD - To Be Determined

ENGINE MODEL : **KTA19-G8**
DATA SHEET : DS-4428
DATE : 8July04
CURVE NO. : FR-4428