FDK ENERGY

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DATA SHEET

DIESEL GENERATOR 220KW
MODEL#FDK-CC275/H1
50HZ/1500RPM
CUMMINS MODEL: MTA11-G2

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-CC275/H1	Engine Make	Cummins
Prime Power	200KW/250KVA	Engine Model	MTA11-G2
Standby Power	220KW/275KVA	Alternator model	Stamford UCDI274K
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	MTA11-G2	Aspiration	Turbo-charged
Engine Manufacturer	Cummins (CCEC CHINA)	Bore x Stroke (mm x mm)	125×147
		Displacement	10.8L
Cylinder quantity	6	Compression Ratio	16.0:1
Cylinder Arrangement	In-line	Prime power / Speed (KW/RPM)	224/1500
Cycle	4	Standby power/ Speed (KW/RPM)	246/1500

CE ISO9001:2008

Type Injection System	Direct injection Cummins PT	Fuel Consumption at 100% load (L/HOUR)	53 at 1500rpm
Piston Speed	7.62m/s	Starter motor	DC24V
Friction Energy Output	22kw	Low idle	675-750rpm
Total Lubrication System Capacity (L)	39	Coolant Capacity (L)	12.9L

Alternator Specifications

Alternator model	UCDI274K	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	250KVA	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.

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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)	3000×1054×1758
Weight (kg)	2460

Soundproof Version

Overall Size: L×W×H (mm)	4200×1400×2150
Weight (kg)	4100

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	**Engine Data Sheet**			**Engine Family**	D35	**Emission Level**	N/A
				Engine Model	**MTA11-G2**		
	Advertised Horsepower	STANDBY：246kW/1500r/min@50hz PRIME：224kW/1500r/min@50hz					
	Curve Number	FR-2487	**Data Sheet**	DS-2487	**CPL Code**	2165	**Fuel System**	**PT-STC**
	Engine Configuration	D353005CX03		**Aspiration**	Turbo & Charge Air Cooling	Date Issued	12/2007

General Engine Data

Type …… 6 Cylinder, In-line, 4 Cycle

Aspiration …… Turbocharged & Jacket Water Aftercooled

Bore×Stroke -mm×mm …… 125×147

Displacement –L …… 10.8

Firing Order …… 1-5-3-6-2-4

Compression Ratio …… 16.1：1

Dry Weight (Including Flywheel and Generator,

Excluding other Electrical Component) -kg …… 940

Wet Weight -(kg) …… 980

Center of Gravity from Front Face of Block -mm …… 450

Center of Gravity above Crankshaft Centerline -mm …… 191

Moment of Inertia of Rotation Components (Excluding Flywheel) -kg • m^2 …… 0.85

Installation Drawing …… 3170249

Estimated Free Filed Sound Pressure Level at 15m and Full Load Governed Speed –dBa

—Right Side …… 83.9

—Left Side …… 84.9

—Front …… 85.1

—Rear …… 78.5

Engine Mounting

Maximum of Bending Moment @ Bolt Pad for Front Support -N.m …… TBD

Maximum of Bending Moment @ RFOB -N.m …… 1350

Moment of Inertia of Complete Engine (with FW2141) -kg • m2 …… 2.63

Performance Data

All data is based on：

The engine operating with fuel system, water pump, lubricating oil pump, air cleaner and muffler; not included are alternator, compressor, fan, optional equipment and driven components.

The engine operating with No.0 diesel fuel which meets GB/T 252.

Standard Test Conditions (Refer to Part 1 of ISO 3046)：

—Barometric pressure ： 100kPa

—Inlet air temperature： 25℃

—Altitude： 90m

—Relative Humidity： 30 %

Data represents gross engine performance capabilities obtained and corrected in accordance with SAE J1995.

Idle Speed -r/min……675–750

Minimum Engine Speed -r/min……500

Closed Throttle Torque at Minimum Engine Speed -N.m……340

Maximum Governed Speed -r/min …… 1725

Maximum Allowable Altitude –m …… 1525

Crankshaft Thrust Bearing load Limit：

—Maximum Intermittent -(N)……9000

—Maximum Continuous -(N) ……4000

Steady State Stability Band at any Constant Load -% …… ±0.25

Maximum Over Speed Capability r/min …… 1725

Performance Data	**STANDBY**		**PRIME**	
	60HZ	50HZ	60HZ	50HZ
Engine Speed -r/min	1800	1500	1800	1500
Power Output –kW	283	246	257	224
Brake Mean Effective –kPa	1742	1816	1586	1651
Piston Speed -m/s	8.8	7.4	8.8	7.4
Maximum Friction Power -kW	30.6	22.4	30.6	22.4
Engine Coolant Flow -L/s	5	3.8	5	3.8
Engine Data with Dry Type Exhaust Manifold				
Intake Air Flow -L/s	380	280	362	263
Exhaust Gas Temperature -℃	440	518	429	510
Exhaust Gas Flow -L/s	858	707	802	510
Radiated Heat to Ambient –kW	40	34	35	31

Heat Rejection to Coolant –kW	148	114	138	106
Heat Rejection to Exhaust –kW	190	170	162	159
Air Flow to Fan -L/s	9808	8161	9808	8161
Air to Fuel Ratio	28.0:1	24.0:1	30.0:1	25.0:1

Exhaust System

Maximum Back Pressure –kPa …… 10.0

Exhaust Pipe Size Normally Acceptable –mm …… 102

Maximum Bending Moment to the Turbo Flange -N.m …… 27

Air Intake System

Maximum Temperature Rise Between Ambient Air and Engine Air Inlet -℃ …… TBD

Maximum Allowable Intake Air Restriction With Heavy Duty Air Cleaner -kPa

—Clean Element …… 2.5

—Dirty Element …… 6.2

Minimum Allowable Dirt Holding Capacity With Heavy Duty Air Cleaner -g/l/s …… 63

Cooling System

Coolant Capacity，Engine Only –L …… 12.9

Standard Thermostat (modulating) Range -℃ …… 82–93

Maximum Coolant Friction Head External to Engine –kPa …… 34.5

Minimum Water Pump Inlet Pressure (Thermostat Full open and No Pressure Cap) –kPa …… 8.5

Maximum Static Head of Coolant Above Engine Crank Centerline –m …… 14

Maximum Block Coolant Pressure with Closed Thermostat and no Pressure Cap –kPa …… 276

Maximum Pressure Cap –kPa …… 50

Maximum Engine Coolant temperature at Engine Outlet -℃

—Standby …… 104

—Prime …… 100

Minimum Engine Coolant temperature -℃ …… 70

Minimum Allowable Fill Rate -L/min …… 19

Maximum Initial Fill Time –min. …… 5

Minimum Coolant Expansion Space of System Capacity -%…… 5

Maximum Allowable Deaeration Time –min. …… 25

Minimum Allowable Drawdown –L …… 7.1

Maximum Coolant Flow to Accessory -L/min. …… 75

Minimum Coolant Capacity, Not Including Expansion Space –L …… 9.5

Typical Temperature Range of Fan Working -℃ …… N/A

Shutter Opening Temperature -℃ …… TBD

Minimum Cooling Capacity at Normal OiL Supply:

—Maximum Ambient Temperature at Rate Speed -℃ …… 40

—Maximum Ambient Temperature at Peak Torque Speed -℃ …… TBD

LUBRICATION SYSTEM

Oil Pan Capacity:

—High –L …… 34

—Low –L …… 30

Total System Capacity with LF9009 Combine filter -L …… 39

Angularity of Standard Oil Pan: OP 2082-Degrees: -Degree

—Front Down …… 45

—Rear Down …… 48

—Fuel Pump Side Down …… 55

—Exhaust Side Down …… 60

Normal Operate Oil Pressure Range –kPa …… 207-276

Maximum Lube oil Flow for Engine Accessories -L/min …… 8

Maximum Allowable Sump Oil Temperature -℃ …… 121

Minimum Engine Oil Pressure for Engine Protection Devices -kPa:

—At Rated Speed and Load –kPa …… 193

—At Peak Torque and Load –kPa …… 152

—At Low Idle –kPa …… 69

Maximum Oil Consumption -g/kW.h …… 0.24

FUEL SYSTEM

Maximum allowable Restriction to PT Fuel Pump -kPa:

—With Clean Fuel Filter …… 13.6

—With Dirty Fuel Filter …… 27.1

Maximum Allowable Injector Return Line Restriction -kPa

—With Check Valves …… 22

—Less Check Valves …… 8.4

Minimum Allowable Fuel Tank Vent Capability -L/hr …….……..……..…….…….. 850

Maximum fuel Inlet Temperature -℃ ……..…….. 71

ELECTRICAL SYSTEM

	12伏特	24伏特
Minimum Battery Capacity -Cold Soak at -18℃ or Above :		
—Above 10℃ ……..…….……..……..	N/A	600
—0℃～10℃ …….. …….	N/A	640
—Less Than 0℃ …….. ……..…….…….	N/A	900
Maximum Allowable Resistance of Starting Circuit With 24 volt Starter）-Ω ……..…	N/A	0.002
Maximum Starting Circuit Volt Drop @100 Amperes-Volt …….……....	0.075	0.2

CRANKING SYSTEM

Minimum Cranking Speed Required for Unaided Cold Start -r/min ……..…….. 150

NOTE:

N/A = Not Applicable. TBD = To Be Determined.

All Data is Subject to Change Without Notice.

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