

Energetech LLC

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New 850 kW Prime Power Natural Gas Generator Set

Approval Status: Energetech's Packager is an Approved Supplier

Pages of specifications received:

Drawings received: none

Addenda received: none

Quotation is: As Per this Bill of Materials

ENGINE MODEL:SP0850G:GUASCOR SFGLD 480

RATING:	PRIME POWER	POWER FACTOR:	0.8
KILOWATT/KVA:	850 KW	D/C VOLTAGE:	24 VOLTS
OVERLOAD:	10 %	FUEL:	GAS
R.P.M:	1800	AMBIENT TEMP.:	40 C (104 F)
PHASE:	THREE PHASE	ELEVATION:	700 ft
A/C VOLTAGE:	480	FREQUENCY:	60 Hz

Price: Please Call

Delivery Date: 14-16 Weeks

Generator

Model: SG1050 – Rated 1050 kW, 480 V.

Class H insulation (superior to class F) per NEMA MG1 22.4 and CSA standards

Temperature rise: 125 degrees C rise in a 40 degrees C ambient

- Thermistors embedded in stator windings, Permanent magnets in exciter

Automatic Voltage Regulator:

Voltage regulation +/- 1%. Three phase sustained short circuit current.

Mounted in generator terminal box, c/w Integral voltage adjust rheostat, under an easy access cover for adjustments and maintenance.

Engine

Model: Guascor SFGLD 480

Heat rate: ~ 9400 Btu/kWh

Features: Dress-up

- Guards for moving parts
- Oil drain valve with extension
- Engine mounted, "Pusher" fan
- CGA approved natural gas flex fuel lines
- Altronic CPU 95 ignition system
- Spark plugs

Battery Cables

Sufficient length for mounting battery next to genset skid, on the starter side.

Skid

Heavy duty welded, structural steel

Governor

Woodward Pro act 2 Series Digital Electronic Governor

Block Heater

2 x 4000W Jacket water heaters, installed. AC Power by others.

Isolators

Ten (10) - RCA-60-3500 neoprene mounts with captive, seismic inserts

Lube Oil

First fill of engine manufacturer approved low ash oil

Cooling System

Radiator

Heavy duty remote 2 circuit radiator with fan and motor starter,

180°F Jacket water thermostat & 130 °F intercooler

50/50 Antifreeze (-37 degrees C or -34 degrees F nominal)

Antifreeze supplied for engine radiator capacity only.

Fuel Storage/Supply System

Not included

Gas pressure required is 3.5 - 5 PSI

- Above pressure to be supplied by the customer

The following is included:

- Gas pressure regulator – Primary & Zero
- Gas pressure regulator – Prechamber

- Gas valves – Main, Prechamber slow open type
- Gas valves – Main by-pass slow open type
- Gas filters

Genset Automatic Controller – PRO 42-12

Features:

- * "Fault Reset" push button
- * Digital display (with back light):
- * AC frequency (Hz)
- * AC Volts
- * AC Amps
- * AC KWM
- * AC VARM
- * AC PFM
- * DC Volts
- * Running time hours
- * RPM

Status Indicators:

- * Switch "Not in Auto"..... Amber (Steady Flashing)
- * "System Ready" (auto mode)..... Green (Steady Flashing)
- * Operational Status..... Green (Rapid Flashing)
- * "Emergency Stop" activated..... Red (Steady Flashing)
- * Shutdown active..... Overview Display

Programmable timing functions - Factory Settings

- * Engine Start delay (adj 0-5 min)..... 3 seconds
- * Overcrank delay (adj 0-4 min)..... 75 seconds
- * Low oil pressure bypass delay (adj 0-255 sec)..... 10 seconds
- * Cooldown timer (adj 0-255)..... 5 minutes
- * Cycle crank (adj 0-30 sec)..... 3 of 15 sec
- * Rest time (adj 1-30 sec)..... 2 of 15 sec

Alarm Annunciation - Digital Display

- * High engine temperature..... Shutdown
- * Overspeed..... Shutdown
- * Overcrank (fail to start)..... Shutdown
- * Low battery voltage..... Alarm
- * Low engine temperature..... Alarm
- * Low coolant level..... Shutdown
- * High engine temperature..... Pre-alarm
- * High battery voltage..... Alarm

Annunciators/Miscellaneous Features:

- * Unit fail contact (10 amp) form C
- * Unit run contact (10 amp) form C

Battery Charger

24 volts, 20 amps, 60 Hz

Features included:

- Automatic float and equalize
- Completely solid state
- On/Off switch with light
- LED indication of equalize mode

Unit mounted

Labour (D/C wiring)

Battery

Four (4) 8D-1100 (210 amp hr) batteries, c/w jumper cables

Battery Racks

Two (2) double 8D - Painted steel

Muffler

14 inch Residential Grade, side inlet, end outlet
Supplied loose

Flexible Connection

Corrugated, stainless steel, flexible connection
* Supplied loose

Circuit Breaker

Not Included To be provided in switchgear.

Enclosure

No Enclosure

Unit Color

Generator colour: Blue

Labels

International Union of Operating Engineers
CSA Approval, CSA C282 Preventative Maintenance warning
Two (2) decals "Danger unit may start automatically"

Factory Testing

Factory Test
One (1) hour at 100% load
One (1) hour at 110% load
- At unity power factor
- Testing for load pickup and rejection

Operating and Maintenance Manuals.

- 2 Sets of O & M manuals shall be supplied.
One installation manual shipped with the unit.

Field Start-up

Not included

Outgoing Freight

FOB Factory, offloading by others.

Packing

Pallet/Poly protection

Warranty

Earlier of 12 months after field start-up or 18 months after shipment date or 2000 hours of operation.

Maintenance

We would be happy to set up a maintenance contract with you to provide factory trained maintenance staff to your customer.

A. EXCLUSIONS:

Field Installation Items:

- Exhaust pipe, exhaust hangers, lagging, guards
- Flanges, thimble, any material past the muffler, fuel
- Primary regulator, Nat gas fuel train, utility fuel lines

Other Exclusions: As outlined in the Bill of Materials

B. CONDITIONS:

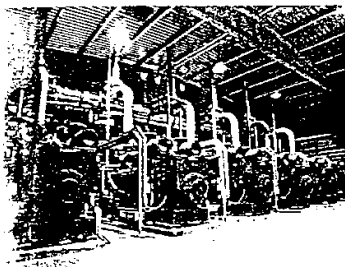
- Standard Conditions of Sale apply, copy available upon request.
- Prices are in U.S. funds.
- Quotation is valid for thirty (30) days from date of issue.
- Normal delivery, ex-factory, is 14-16 weeks after receipt of order, subject to availability. Please consult the factory for exact.
- Purchase Order will not be processed unless accompanied by a firm 'Request for Delivery' date. This date cannot be altered after Purchase Order placed, unless agreed to in writing.
- Supply scope limited to this Bill of Materials.

Payment terms: (unless other arrangements have been set up)

- 30% deposit with order
- 15% on approval of shop drawings
- 25% on completion of factory testing
- 30% on ready for shipment

C. NOTES:

- 1) Emissions on this engine is 1.5g NOx/bhp-hr
- 2) This engine control system has the unique capability to make the engine fuel mixture go from lean burn to transiently stoichiometric upon application of block load. This engine can offer 100% block loading.
- 3) This unit has one of the best ignition and governor systems available in the world today.



POWER GENERATION APPLICATIONS

RATINGS 1200/1500 RPM

<i>Engine Model</i>		SFGLD 180	SFGLD 240	SFGLD 360	SFGLD 480	SFGLD 560
Continuous Rating	kWb	/314	335/419	/628	670/838	792/985

Continuous rating: Output available without load variation for an unlimited time

RATINGS 1800 RPM

<i>Engine Model</i>		SFGLD 240	SFGLD 480
Prime Rating	kWb	453	906
Stand-By Rating	kWb	527	1026

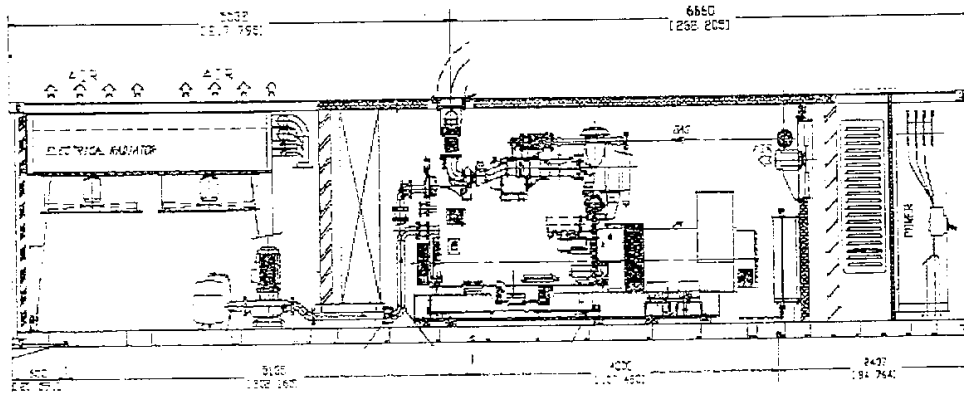
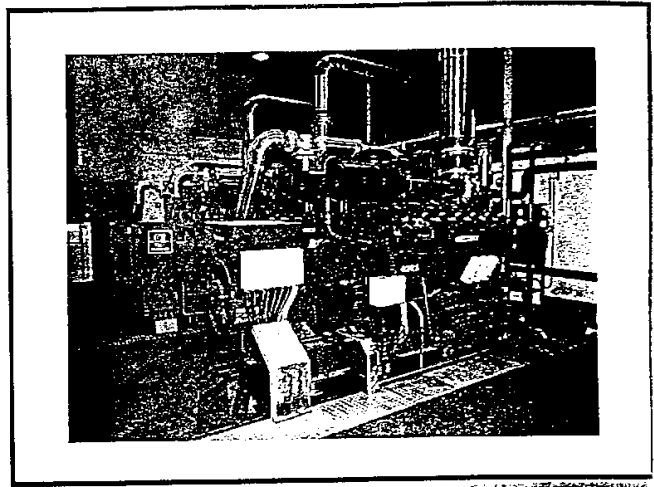
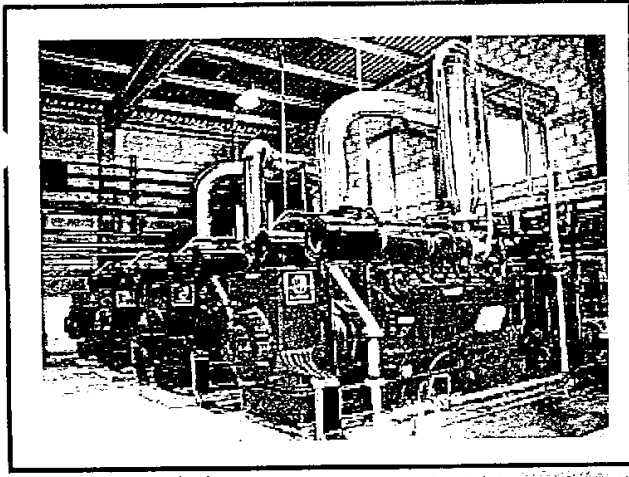
Prime rating: Unlimited time of operation at 80% load average with full load limited to 750 hours/year

Stand-by rating: Output available with variable load for the outage period. Maximum 250h/year

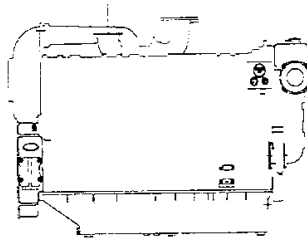
ENGINE SPECIFICATIONS

<i>Engine Model</i>		SFGLD 180	SFGLD 240	SFGLD 360	SFGLD 480	SFGLD 560
Configuration		6L	8L	12V	16V	16V
Rotating Speed	RPM	1200/1500/1800				1200/1500
Bore x Stroke	mm(in)	150(5.98) x 165(6.50)				160(6.3) x 175(6.89)
Displacement	L(cu.in)	18 (1096)	24 (1465)	36 (2197)	48 (2929)	56 (3417)
Compression Ratio		11.7:1				
Piston Speed	m/s(ft/min)	9.91 (1950) @ 1800 rpm				8.75 (1722)
Efficiency	%		38.5		36.5	37.5
Emissions						
NOx (##)	gr/bhp-hr		2		2	2
CO (##)	gr/bhp-hr		1.5		1.5	1.5

(##) Lower emissions are available



	LENGTH	WIDTH	HEIGHT	WEIGHT
OVERALL DIMENSIONS mm (in)	12192 (480)	2438 (96)	2896 (114)	25 T



DIMENSIONS & WEIGHTS

SFGLD 180	1756 (69.13)	945 (37.20)	1459 (57.44)	2620 (5777)
SFGLD 240	2304 (90.71)	945 (37.20)	1459 (57.44)	3490 (7541)
SFGLD 360	2656 (104.57)	1408 (55.43)	1738 (68.43)	4700 (10363)
SFGLD 480	3126 (123.07)	1408 (55.43)	1738 (68.43)	5550 (12238)
SFGLD 560	3126 (123.07)	1408 (55.43)	1738 (68.43)	5550 (12238)