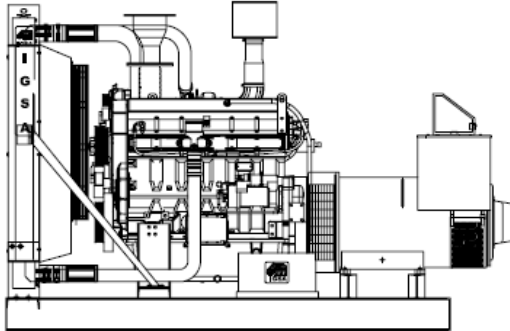




MAQUINARIA IGSA POWER GENERATION SYSTEMS



MODEL: GSJD20400M
DIESEL ENGINE: JOHN DEERE
MODEL: 6125HF070
CAPACITY: 400kW; 1800 RPM TIER II

RATINGS RANGE	
PRIME hp (kW)	STANDBY hp (kW)
426-445 (318-332)	516-539 (385-402)

Note: Gross power guaranteed within + or - 5%
ISO 3046 conditions:
77°F (25°C) Air inlet temperature
29.31 in.Hg(99KPa) Barometer
104 °F (40°C) fuel inlet temperature
0.853 fuel specific gravity @ 60°F (15.5 °C)

STANDARD FEATURES

Complete system designed and built at ISO9001 certified facility

- Factory tested to design specifications at full load conditions.
- Fully engineered with a range of options and accessories.

1 IGSA Genset's are composed of 6 cylinders in line and four strokes diesel engine for industrial stationary applications. Those equipments are fully factory tested using a resistive load. (1) Hour ramp 100% load test.

2 The controls and accessories are selected to work together to achieve the maximum operational performance and security.

3 Exhaust gases silencer, and a section of flexible tube for connection purposes.

4 Engine **JOHN DEERE 6125HF070 TIER II**

5 Alternator Marathon or Stamford

6 Radiator

7 Control MEC 310 (panel USC300)

8 Base of structural steel

GENERAL FEATURES

- IGSA GENSET of, **400 kW to 480V, 440V, 380V, 220V, 208V, 190VAC**, 3 Phase, 4 Wire, 60 Hertz, is composed by an internal engine four strokes coupling with the alternator, controls and accessories totally assembled and tested in factory.
- The controls and accessories of the Genset are selected to provide the maximum in efficiency and Security
- The generator set its components are tested factory-built, and production-tested.
- The genset engine is certified by the Environmental Protection Agency (EPA) TIER II
- Electronic engine controls manage the engine (isochronous)
- Integrated complete system control and monitoring (JDEC)

ENGINE SPECIFICATION DATA MODEL 6125HF070
weight 1205 kg (2657Lb)

General Data	
Model	6125HF070
Number of Cylinders	6
Bore and Stroke--in.(mm)	5.00 x 6.50 (127 x 165)
Displacement--in.3 (L)	763 (12.5)
Compression Ratio	17:01
Valves per Cylinder--Intake/Exhaust	2/2
Firing Order	1 - 5 - 3 - 6 - 2 - 4
Combustion System	Unit Injection
Engine Type	In-line, 4-Cycle
Aspiration	Turbocharged
Charge Air Cooling System	Air-to-Air
Engine Crankcase Vent System	Open
Maximum Crankcase Pressure--in.H2O (kPa)	2 (0.5)
Physical Data	
Length--in.(mm)	52.2 (1326)
Width--in.(mm)	31.8 (808)
Height--in.(mm)	44.8 (1239)
Weight, dry--lb (kg)	2657 (1205)
(includes flywheel housing, flywheel & electrics)	
Center of Gravity Location	
From Rear Face of Block (X-axis)--in.(mm)	21.5 (545)
Right of Crankshaft (Y-axis)--in.(mm)	0.63 (16)
Above Crankshaft (Z-axis)--in.(mm)	8.6 (218)
Max. Allow. Static Bending Moment at Rear	
Face of Flywhl Hsg w/ 5-G Load--lb-ft (N•m)	600 (814)
Thrust Bearing Load Limit (Forward)	
Continuous--lb (N)	1225 (5449)
Intermittent--lb (N)	1835 (8162)
Performance Data	
	Prime Standby
Rated Power--hp (kW)	426-445 (318-332) 516-539 (385-402)
Rated Speed--rpm	1800 1800
Low Idle Speed--rpm	1000 1000
BMEP--psi (kPa)	294 (2027) 353 (2436)
Friction Power	
At Rated Speed--hp (kW)	30 (22) 30 (22)
Altitude Capability--ft (m)	9000 (2745) 9000 (2745)
Ratio--Air : Fuel.	24.0:1 23.0:1
Noise--dB(A) @ 1 m	100.5 101.0
Air System	
	Prime Standby
Maximum Allowable Temp Rise--Ambient Air to Engine Inlet--°F (°C)	15 (8) 15 (8)
Maximum Air Intake Restriction	
Dirty Air Cleaner--in.H2O (kPa)	25 (6.25) 25 (6.25)
Clean Air Cleaner--in.H2O (kPa)	12 (3) 12 (3)
Engine Air Flow--ft3/min (m3/min)	1024(29) 1201(34)
Intake Manifold Pressure--psi (kPa)	29 (203) 38 (265)
Rec'd. Intake Pipe Dia--in.(mm)	5.5 (140) 5.5 (140)
Compress Discharge Temp °F (°C)	374(190) 439(226)
Max. press. Drop through	
Charge Air Cooler	52 (13) 52 (13)
Max. Temp. Out of Charge Air Cooler @ 77 °F (25°C) Ambient Air °F (°C)	140 (60) 140 (60)

Electrical System		
Recommended Battery Capacity (CCA)		
12 Volt System--amp		1800
24 Volt System--amp		900
Maximum Allowable Starting Circuit Resistane		
12 Volt System--Ohm		0.0012
24 Volt System--Ohm		0.002
Starter Rolling Current -- 12 Volt System		
At 32 F (0 C) -- amp		1280
At -22 F (-30 C) -- amp		1500
Starter Rolling Current -- 12 Volt System		
At 32 F (0 C) -- amp		600
At -22 F (-30 C) -- amp		970
Lubrication System	Prime	Standby
Oil Pressure at Rated Speed--psi (kPa)	40 (275)	40 (275)
Oil Pressure at Low Idle--psi (kPa)	20 (138)	20 (138)
In Pan Oil Temperature--°F (°C)	239 (115)	239 (115)
Oil Pan Capacity, High--qt (L)	42 (40)	42 (40)
Oil Pan Capacity, Low--qt (L)	40 (38)	40 (38)
Eng. Oil Capacity with Filters--qt(L)	44 (42)	44 (42)
Engine Angularity Limits		
(Continuous) Any Direction--degrees	20	20
Exhaust System	Prime	Standby
Exhaust Flow--ft3/min (m3/min)	2613(74.0)	3214(91.0)
Exhaust Temperature--°F (°C)	986 (530)	1040 (560)
Max. Allow. Back Press.--in.H2O (kPa)	30 (7.5)	30 (7.5)
Recm'd Exhaust Pipe Dia--in.(mm)	5 (127)	5 (127)
Cooling System	Prime	Standby
Engine Heat Reject.--BTU/min (kW)	8706 (153)	10242(180)
Air/Air Exchanger Heat Rejection Btu/min (kW)		
Btu/min (kW)	3926 (69)	6031 (106)
Coolant Flow--gal/min (L/min)	73 (276)	73 (276)
Thermostat Start to Open--°F (°C)	180 (82)	180 (82)
Thermostat Fully Open--°F (°C)	201 (94)	201 (94)
Engine Coolant Capacity--qt (L)	17 (16.2)	17 (16.2)
Recm'd Pressure Cap--psi (kPa)	7 (48)	7 (48)
Maximum Top Tank Temp--°F (°C)	212 (100)	221 (105)
Min. Coolant Fill Rate--gal/min (L/min)	3 (11)	3 (11)
Min. Air-to-Boil Temperature--°F (°C)	117 (47)	117 (47)
Fuel System	Prime	Standby
Fuel Injection Pump	Unit/E.C	Unit/E.C
Governor Type	Electronic	Electronic
Fuel Consumption--lb/hr (kg/hr)	176.9(80.4)	221.3(100.6)
Maximum Fuel Transfer Pump Suction ft (m) fuel	10 (3.0)	10 (3.0)
Fuel Filter Micron Size @ 98 % Efficiency	2	2
Fuel Consumption -- lb/hr (kg/hr)	Prime	Standby
25 % Power	50.8 (23.1)	59.8 (27.2)
50 % Power	89.3 (40.6)	105.8 (48.1)
75 % Power	129.6(58.9)	155.8 (70.8)
100 % Power	176.9(80.4)	221.3(100.6)
Electronic Engine Controls (JDEC)		
Governor Droop (Pin E)		
Isochronous		0%
Droop 1800 rpm		4%
Pins "C" and "d"		Not used



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MARATHON ELECTRIC ALTERNATOR MODEL 433PSL6220

weight 973 kg (2245Lb)

Kilowatt ratings at kW (kVA)	1800 RPM			60 Hertz			12 Leads standard 3 phase			
	3 Phase			0.8 Power Factor			Dripproof or Open Enclosure			
Voltage	Class B		Class F				Class H			
	80°C -176°F (1) Continuous	90°C-194° F (1) Lloyds	95°C-203° F (1) ABS	105°C-221°F † British Standard	105°C-221°F (1) Continuous	130°C-282°F (1) Standby	125°C-257°F † British Standard	125°C-257°F (1) Continuous	150°C-302°F (1) Standby	
240/480	310 (388)	340 (425)	352 (440)	375 (469)	375 (469)	411 (514)	391 (489)	403 (504)	430 (538)	
230/460	313 (391)	341 (426)	355 (444)	375 (469)	375 (469)	410 (513)	387 (484)	402 (503)	426 (533)	
220/440	317 (396)	343 (429)	355 (444)	375 (469)	375 (469)	410 (513)	385 (481)	397 (496)	423 (529)	
208/416	315 (394)	335 (419)	345 (431)	362 (453)	362 (453)	400 (500)	379 (474)	385 (481)	417 (521)	
190/380	292 (365)	311 (389)	320 (400)	335 (419)	335 (419)	367 (459)	350 (438)	355 (444)	385 (481)	

□ Rise by resistance method, Mil-Std-705, Method 680.1b.

† Rating per BS 5000.

Submittal Data: 240/480 Volts, 500 kVA, 1800 RPM, 60 Hz, 3 Phase					
Mil-Std-705C			Mil-Std-705C		
Method	Description	Value	Method	Description	Value
301.1b	Insulation Resistance	> 1.5 Meg	505.3b	Overspeed	2250 RPM
302.1a	High Potential Test		507.1c	Phase Sequence CCW-ODE	ABC
	Main Stator	2000 Volts	508.1c	Voltage Balance L-L OR L-N	0.2%
	Main Rotor	1500 Volts	601.4a	L-L Harmonic Maximum - Total (Distortion Factor)	5.0%
401.1a	Exciter Stator	1500 Volts	601.4a	L-L Harmonic Maximum - Single	3.0%
	Exciter Rotor	1500 Volts	601.1c	Deviation Factor	5.0%
	Stator Resistance, Line to Line		--	TIF (1960 Weightings)	<50
	High Wye Connection	0.0124 Ohms	625.1c	Mechanical Strength (High wye Connection, sustained 3 Phase Short Circuit Current)	<300%
	Rotor Resistance	1.991 Ohms	652.1a	Shaft Current	<0.1 ma
410.1a	Exciter Stator	18.5 Ohms	652.2a	Main Stator Capacitance to ground	0.028 mfd
	Exciter Rotor	0.116 Ohms			
410.1a	No Load Exciter Field Amps at 480 Volts Line to Line	0.86 A DC			
420.1a	Short Circuit Ratio	0.54			
421.1a	Xd Synchronous Reactance	2.414 pu			
422.1a	X2 Negative Sequence Reactance	0.162 pu			
	X0 Zero Sequence Reactance	0.039 pu			
423.1a	X'd Transient Reactance	0.117 pu			
426.1a	X"d Subtransient Reactance	0.104 pu			
427.1a	T'd Transient Short Circuit Time Constant	0.067 sec.			
	T"d Subtransient Short Circuit Time Constant	0.016 sec.			
430.1a	T'do Transient Open Circuit Time Constant	2.27 sec.			
	Ta Short Circuit Time Constant of Armature Winding	0.018 sec.			

* (3) Excitation support system or PMG required to sustain short circuit currents.
 * Voltage refers to wye (star) connection, unless otherwise specified.
 ** Not supplied as standard equipment.
 *** DVR@2000 voltage regulator supplied with PMG option. DVR@2000 voltage regulation ¼% I or 3 Phase sensing



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STAMFORD ELECTRIC ALTERNATOR MODEL HCI434F/444F weight 1172 kg (2584Lb)

CONTROL SYSTEM	SEPARATELY EXCITED BY P.M.G.		
A.V.R.	MX321	MX341	
VOLTAGE REGULATION	(+/- 0.5%)	(+/- 1.0%)	WITH 4% ENGINE GOVERNING
SUSTAINED SHORT CIRCUIT	REFERENT TO SHOT CIRCUIT DECREMENT CURVES		

INSULATION SYSTEM	CLASS H							
PROTECTION	IP23							
RATED POWER FACTOR	0.8							
STATOR WINDING	DOUBLE LAYER CONCENTRIC							
WINDING PITCH	TWO THIRDS							
WINDING LEADS	12							
STATOR WDG. RESISTANCE	0.0073 Ohms PER PHASE AT 22°C SERIES STAR CONNECTED							
ROTOR WDG. RESISTANCE	1.37 Ohms at 22°C							
EXCITER STATOR RESISTANCE	18 Ohms at 22°C							
EXCITER ROTOR RESISTANCE	0.068 Ohms PER PHASE AT 22°C							
R.F.I. SUPPRESSION	BS EN 61000-6-2 & BS EN 61000-6-4, VDE 0875G, VDE 0875N. refer to factory for others							
WAVEFORM DISTORTION	NO LOAD < 1.5% NON-DISTORTING BALANCED LINEAR LOAD < 5.0%							
MAXIMUM OVERSPEED	2250 Rev/Min							
BEARING DRIVE END	BALL. 6317 (ISO)							
BEARING NON-DRIVE END	BALL. 6314 (ISO)							
WEIGHT COMP. GENERATOR WEIGHT WOUND STATOR WEIGHT WOUND ROTOR WR ² INERTIA SHIPPING WEIGHTS in a crate PACKING CRATE SIZE	1 BEARING				2 BEARING			
	1160 kg				1060 kg			
	535 kg				535 kg			
	463 Kg				440 kg			
	5.4292 kgm ²				5.2304 kgm ²			
	1230 kg				1230 kg			
	155 x 87 x 107 (cm)				156 x 87 x 107 (cm)			
TELEPHONE INTERFERENCE COOLING AIR	50 Hz				60 Hz			
	THF<2%				TIF<50			
	0.8 m ³ /sec 1700 cfm				0.99 m ³ /sec 2100 cfm			
VOLTAGE SERIES STAR	380/220	400/231	415/240	440/254	416/240	440/254	460/266	480/277
VOLTAGE PARALLEL STAR	190/110	200/115	208/120	220/127	208/120	220/127	230/133	240/138
VOLTAGE SERIES DELTA	220/110	230/115	240/120	254/127	240/120	254/127	266/133	277/138
kVA BASE RATING FOR RECTANCE VALUES	400	400	400	400	455	480	500	500
X _d DIR. AXIS SYNCHRONOUS	2.72	2.45	2.28	2.03	3.28	3.09	2.95	2.71
X' _d DIR. AXIS TRANSIENT	0.18	0.16	0.15	0.13	0.18	0.17	0.16	0.15
X'' _d DIR. AXIS SUBTRANSIENT	0.13	0.12	0.11	0.10	0.13	0.12	0.12	0.11
X _q QUAD. AXIS REACTANCE	2.35	2.12	1.97	1.75	2.90	2.73	2.61	2.39
X'' _q QUAD. AXIS SUBTRANSIENT	0.31	0.28	0.26	0.23	0.43	0.41	0.39	0.35
X _L LEAKAGE REACTANCE	0.06	0.05	0.05	0.04	0.07	0.07	0.06	0.06
X ₂ NEGATIVE SEQUENCE	0.23	0.20	0.09	0.17	0.29	0.27	0.26	0.24
X ₀ ZERO SEQUENCE	0.06	0.08	0.07	0.06	0.10	0.09	0.09	0.06
REACTANCES ARE SATURATED VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED								
T' _d TRANSIENT TIME CONST.	0.08 s							
T'' _d SUB-TRANSTIME CONST.	0.019 s							
T' _{do} O.C. FIELD TIME CONST.	1.7 s							
T _a ARMATURE TIME CONST.	0.018 s							
SHORT CIRCUIT RATIO	1/X _d							

RATINGS: All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor. Standby Ratings: Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Ratings are in accordance with ISO-3046/1, BS5514, AS2789, and DIN 6271. Prime Power Ratings: Prime power ratings apply to installations where utility power is unavailable or unreliable. At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for a 12 hour period. Ratings are in accordance with ISO-8528/1, overload power in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. For limited running time and base load ratings, consult the factory. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. GENERAL GUIDELINES FOR DERATION: Altitude: Derate 0.5% per 100 m (328 ft.) elevation above 1000m (3300 ft.). Temperature: Derate 1.0% per 10°C (18°F) temperature above 25°C (77°F).



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CONTROLLER FOR GENSET: CONTROL MEC 310 PANEL USC300

The Generator Controller MEC 310 is a microprocessor-based control unit containing all necessary functions for protection and control of a power generator. Besides the control and protection of the diesel engine it contains a full 3-phase AC voltage and current measuring circuit. The unit is equipped with an LCD display presenting all values and alarms.



- USC 300C Unit Mount Control Panel, Black Nema 1 enclosure c/w rubber mounts
 - MEC 310 Microprocessor Based Engine Generator Controller
 - Graphic Display 128 X 64 pixels (STN) Super Twisted Nematic
 - Digital AC Metering:
 - 3-Phase Volts (Phase to Phase and Phase to Neutral),
 - 3-Phase Amps
 - Frequency
 - kW, kVAR, KVA, pF, kWhr
- AC Protective Relaying:
 - 27/59 Under/Over Voltage
 - 32 Reverse Power
 - 51 Time Overcurrent
 - 81 O/U Under/Over Frequency
 - Digital gauge display:
 - Oil Pressure (sender required by others)
 - Coolant Temperature (sender required by others)
 - Fuel Level (sender required by others)
 - Hourmeter
 - Tachometer
- 5 digital inputs for alarms / shutdowns
 - Dedicated Output Contacts - Engine Crank; Run (30 VDC / 6 Amps)
 - Three Programmable Output Contacts (30 VDC / 1 Amps)
 - Event Logging (30 events)
 - Pushbuttons:
 - Emergency Stop
 - Manual Start and Stop
 - Manual/Auto/Test
 - Lamp Test
 - Horn Silence
 - Indicating Lights:
 - Common Alarm
 - Generator Ready (Voltage and Frequency Normal)

FEATURES

- Electrical Rating:**
- Single or three phase, 600VAC maximum, 50/60HZ, 4 wire
 - 12 or 24Vdc (nominal) supply, negative ground.
 - Dedicated Output Contacts - Engine Crank; Run (30 VDC / 6 Amps)
 - Three Programmable Output Contacts (30 VDC / 1 Amps)
- Enclosure:**
- Black Nema 1 enclosure c/w rubber mounts
- Engine Senders:**
- Oil pressure (1/8" NPT), Temperature (1/4"NPT) (Supplied loose for engine mounting).
- Requirements:**
- Exceeds requirements of CSA 282 and NFPA 110 Level



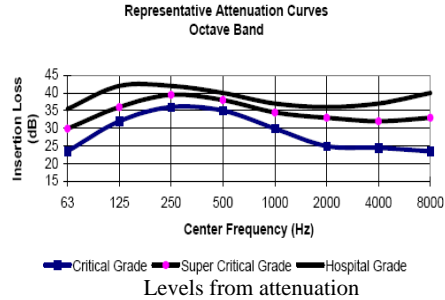
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OPTIONAL SILENCER ACCORDING TO THE APPLICATION

Silencer with different levels from attenuation

- Critical Grade
- Super Critical Grade
- Hospital Grade



DOCUMENTATION AND OTHERS

- Manual of operation and maintenance
- Spare parts
- Maintenance
- Consulting

MISCELLANEOUS EQUIPMENT

- Batteries of 12 VDC with cables for battery connection with the Engine.

GENSET OPTIONS

Control Panel

USC 300C Control Panel is standard on all units see page 4 of spec sheet for standard features.

Another Type _____

Fuel system

- Fuel Water Separator
- Day tank
- Auxiliary fuel pump
- Sub Base mounted Fuel Tank
 - Single Wall
 - Double Wall
 - UL listed
 - 150 L (39.6 gal)
 - 250 L (66 gal)

Diesel Fuel Tank

- 500 L (132 gal)
- 1000 L (264.1 gal)
- 5000 L (1320.8 gal)

Exhaust System

- Critical Grade
- Super Critical Grade
- Hospital Grade

Engine Electrical system

- Battery
 - Lead-Acid
 - NiCad
- Battery Rack
- Battery Charger Automatic

Generator

- Breaker in the alternator

OPTIONAL ACCESSORIES AVAILABLE FOR THE EQUIPMENT

Vibration isolation

- Rigid Spring Mounting
- Resilient Mounting

Filters

- Air Filter for Medium Dust Environments
- Air Filter of Heavy Dust Environments

Drain

- Oil drain Extension

Enclosures

- Sound Attenuated
- Weather Proof
- Stainless steel cover
- Trailer Mounting
- Interior lights Ac or DC

Heaters

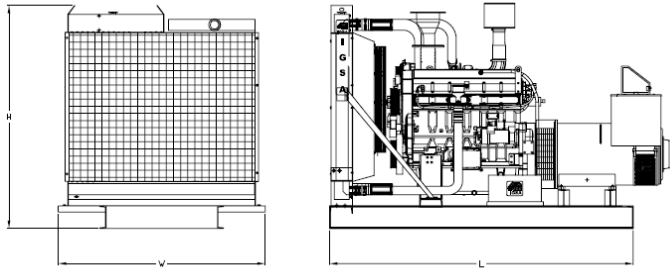
- Jacket Water Heater
- Crankcase Oil Heater

Insulation Blankets

- Features:
(Temperature to 1260°C (2300°F), Non-Combustible, Highly Resistant to Vibration, Oil, Fuel, Grease, and Moisture Resistant Exterior, Personal Protection

Notes

DIMENSIONS



LENGTH	WIDTH	HEIGHT
mm (in)	mm (in)	mm (in)
2700(106.30)	1840(72.44)	1990(72.44)

NOTE: General configuration not to be used for installation. See general dimension drawing for detail.

SERVICES

- Development of the project.
- Development of engineering.
- Equipment's Installation
- Engineering for special applications.
- Synchronies with utility network or more Gensets.
- Attention and technical support

INSTALLATION OPTIONS OF THE GENSET

- On-Site
- Acoustic Enclosure
- ISO Container
- Trailer

