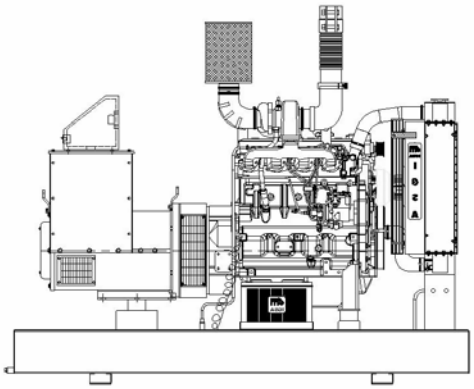
MAQUINARIA IGSA
POWER GENERATION SYSTEMS



MODEL: GSJD10080M
DIESEL ENGINE: JOHN DEERE
MODEL: 4045TF250, TIER 1
CAPACITY: 80 kW; 1800 RPM

RATINGS RANGE	
PRIME hp (kW)	STANDBY hp (kW)
84- 88 (63-66)	93.8 - 99 (70-74)

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 4 cylinders 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, 4045TF250,TIER1**.

5 Marathon or Stamford Alternator.

6 Radiator

7 Control MEC 310 (panel USC300).

8 Base of structural steel.

General Features

- IGSA GENSET of**, 80 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) to conform to Tier 1 nonroad emissions regulations.

ENGINE SPECIFICATION DATA MODEL 4045TF250
weight 396 kg (872 Lb)

General Data	
Model	4045TF250
Number of Cylinders	4
Bore and Stroke--in.(mm)	4.19 x 5 (106 x 127)
Displacement--in.3 (L)	276 (4.5)
Compression Ratio	17.0 : 1
Valves per Cylinder--Intake/Exhaust	1 ./. 1
Firing Order	1 - 3 - 4 - 2
Combustion System	Direct Injection
Engine Type	In-line, 4-Cycle
Aspiration	Turbocharged
Engine Crankcase Vent System	Open
Maximum Crankcase Pressure--in.H2O (kPa)	2 (0.5)

Physical Data	
Length--in.(mm)	33.9 (861)
Width--in.(mm)	23.5 (597)
Height--in.(mm)	38.6 (980)
Weight, dry--lb (kg) (Includes SAE 4 flywheel housing, RE28119 flywheel, starter and electrics.)	872 (396)
Center of Gravity Location	
From Rear Face of Block (X-axis)--in.(mm)	10.6 (269)
Right of Crankshaft (Y-axis)--in.(mm)	-0.3 (-8)
Above Crankshaft (Z-axis)--in.(mm)	5.9 (151)
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)	500 (2224)
Intermittent--lb (N)	900 (4003)

Performance Data	Prime	Sandby
Rated Power--hp (kW)	84- 88 (63-66)	93.8 - 99 (70-74)
Rated Speed--rpm	1800	1800
Low Idle Speed--rpm	1400	1400
BMEP--psi (kPa)	162 (1119)	179 (277)
Friction Power		
At Rated Speed--hp (kW)	17 (13)	17 (13)
Altitude Capability--ft (m)	12500 (3800)	10000 (3000)
Ratio--Air : Fuel.	23:3:1	22:1
Noise--dB(A) @ 1 m	90.5	91

Air System	Prime	Sandby
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)	191 (5.4)	198 (5.6)
Intake Manifold Pressure--psi (kPa)	10.3 (71)	12 (83)
Rec'd. Intake Pipe Dia--in.(mm)	3 (76.2)	3 (76.2)

Electrical System	
Recommended Battery Capacity (CCA)	
12 Volt System--amp	640
24 Volt System--amp	570
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	780
At -22 F (-30 C) -- amp	1000
Starter Rolling Current -- 12 Volt System	
At 32 F (0 C) -- amp	600
At -22 F (-30 C) -- amp	700

Lubrication System	Prime	Sandby
Oil Pressure at Rated Speed--psi (kPa)	50 (345)	50 (345)
Oil Pressure at Low Idle--psi (kPa)	15 (105)	15 (105)
In Pan Oil Temperature--°F (°C)	240 (115)	240 (115)
Oil Pan Capacty, High--qt (L)	13 (12.2)	13 (12.2)
Oil Pan Capacty, Low--qt (L)	12 (11.3)	12 (11.3)
Total Engine Oil Capacity		
With Filters--qt (L)	14 (13.2)	14 (13.2)
Engie Angularity Limits		
(Continuous) Any Direction--degrees	20	20

Exhaust System	Prime	Sandby
Exhaust Flow—ft³/min (m³/min)	487 (13.8)	522 (14.8)
Exhaust Temperature--°F (°C)	946(508)	1000(538)
Max. Allow. Back Press.--in.H2O (kPa)	30 (7.5)	30 (7.5)
Recm'd Exhaust Pipe Dia--in.(mm)	4 (101.6)	4 (101.6)

Cooling System	Prime	Sandby
Engine Heat Reject.--BTU/min (kW)	2445 (43)	2730 (48)
Coolant Flow--gal/min (L/min)	38 (144)	38 (144)
Thermostat Start to Open--°F (°C)	180 (82)	180 (82)
Thermostat Fully Open--°F (°C)	202 (94)	202 (94)
Maximum Water Pump Inlet Restriction--in.H2O (kPa)	27 (7)	27 (7)
Engine Coolant Capacity--qt (L)	9 (8.5)	9 (8.5)
Recm'd Pressure Cap--psi (kPa)	10 (69)	10 (69)
Maximum Top Tank Temp--°F (°C)	221 (105)	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	Sandby
Fuel Injection Pump	Stanadyne	Stanadyne
Governor Regulation	5%	5%
Governor Type	Mechanical	Mechanical
Fuel Consumption--lb/hr (kg/hr)	35 (15.9)	38.5 (17.5)
Total Fuel Flow--lb/hr (kg/hr)	212 (96)	212 (96)
Maximum Fuel Transfer Pump Suction ft (m) fuel	3 (0.9)	3 (0.9)
Fuel Filter Micron Size @ 98 % Efficiency	8	8

Fuel Consumption -- lb/hr (kg/hr)	Prime	Sandby
25 % Power	11.7 (5.3)	12.3 (5.6)
50 % Power	19.1 (8)	20.9 (9.5)
75 % Power	27. (12.3)	29.7 (13.5)
100 % Power	35 (15.9)	38.5 (17.5)

Materials and specifications are subject to change without notice.
The International System of Units (SI) is used in this publication.

MARATHON ELECTRIC ALTERNATOR MODEL 362PSL1604
weight 320 kg (706Lb)

Kilowatt ratings at	1800 RPM		60 Hertz			12 Leads standard 3 phase		
kW (kVA)	3 Phase		0.8 Power Factor			Dripproof or Open Enclousure		
	Class B	Class F				Class H		
Voltage	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, 266°F (1) Standby	125° C 257°F British † Standard	125° C, 257°F (1) Continuous	150° C, 302°F (1) Standby
480/240	75 (93.8)	77 (96.3)	77 (96.3)	84(105)	84(105)	90 (113)	90 (113)	90 (113)	95 (119)
460/230	72 (88.8)	73 (91.3)	73 (91.3)	80 (100)	80 (100)	86(108)	86(108)	86(108)	90 (113)
440/220	68 (85)	70 (87.5)	70 (87.5)	76 (95)	76 (95)	84 (105)	84 (105)	84 (105)	6189 (111)
416/208	65 (81.3)	67 (83.8)	67 (83.8)	72 (90)	72 (90)	80 (100)	80 (100)	80 (100)	85 (106)
380/190	60 (75)	60 (75)	60 (75)	65 (81.3)	65 (81.3)	72 (90)	72 (90)	72 (90)	77 (96.3)

(1)Rise by resistance method, Mil-Std-705, Method 680.1b.

† Rating per BS 5000.

Submittal Data: 480 Volts, 80 kw, 100 kVA, 0.8 P.F., 1800 RPM, 60 Hz, 3 Phase

Mil-Std-705C

Method	Description	Value
301.1b	Insulation Resistance	> 1.5 Meg
302.1a	High Potential Test	
	Main Stator	2000 Volts
	Main Rotor	1500 Volts
	Exciter Stator	1500 Volts
	Exciter Rotor	1500 Volts
401.1a	Stator Resistance, Line to Line	
	High Wye Connection	0.138 Ohms
	Rotor Resistance	1.05 Ohms
	Exciter Stator	23.5 Ohms
	Exciter Rotor	0.12 Ohms
410.1a	No Load Exciter Field Amps	
	at 480 Volts Line to Line	0.52 A DC
420.1a	Short Circuit Ratio	0.634
421.1a	Xd Synchronous Reactance	1.864 pu
422.1a	X2 Negative Sequence	0.148 pu
423.1a	X0 Zero Sequence Reactance	0.038 pu
425.1a	X'd Transient Reactance	0.127 pu
426.1a	X"d Subtransient Reactance	0.98 pu
427.1a	T'd Transient Short Circuit	
	Time Constant	0.05 sec.
428.1a	T"d Subtransient Short Circuit	
	Time Constant	0.007 sec.
430.1a	T'do Transient Open Circuit	
	Time Constant	0.8 sec.
432.1a	Ta Short Circuit Time	
	Constant of Armature Winding	0.1 sec.

Mil-Std-705C

Method	Description	Value
505.3b	Overspeed	2250 RPM
507.1c	Phase Sequence CCW-ODE	ABC
508.1c	Voltage Balance L-L OR L-N	0.20%
601.4a	L-L Harmonic Maximum - Total	3.5%
	(Distortion Factor)	
601.4a	L-L Harmonic Maximum - Single	2.5%
601.1c	Deviation Factor	7.0%
--	TIF (1960 Weightings)	<50
--	THF (IEC, BS & NEMA Weightins)	<2%
652.1a	Shaft Current	<0.1 ma
--	Main Stator Capacitance to ground	@NA mdf
	Additional Prototype Mil-Std Methods	
	are Available on Request.	
--	Generator Frame	362
--	Type	Magnaplus
--	Insulation	Class H
--	Coupling - Single Bearing	Flexible
--	Amortisseur Windings	Full
--	Cooling Air Volume	250 CFM
--	Excitation	Ext. Voltage Regulated, Brushless
--	Voltage Regulator	SE350
--	Voltage Regulation	1%
--	Cooling Air Volume	700 CFM
--	Heat rejection rate	528 Btu s/min
--	Full load current	120 amps
--	Minimum Input hp required	119.7
	Efficiency at rated load:	89.6 %
--	Full load torque	349 Lb-ft

* (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.

STAMFORD ELECTRIC ALTERNATOR MODEL UCI224G
weight 383 kg (844.4 Lb.)

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

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	0.056 Ohms PER PHASE AT 22°C SERIES STAR CONNECTED							
ROTOR WDG. RESISTANCE	0.94 Ohms at 22°C (71.6°F)							
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. 6312 - 2RS. (ISO)							
BEARING NON-DRIVE END	BALL. 6309 - 2RS. (ISO)							
	1 BEARING				2 BEARING			
WEIGHT COMP. GENERATOR	383 kg 844.4 lb				400 kg 881.8 lb			
WEIGHT WOUND STATOR	139 kg 306.4 lb				139 kg 306.4 lb			
WEIGHT WOUND ROTOR	126.75 Kg 279.4 lb				118.39 kg 261 lb			
WR² INERTIA	0.7138 kgm2 16.9 lbft²				0.6818 kgm2 16.2 lbft²			
SHIPPING WEIGHTS in a crate	404 kg 890.7 lb				420 kg 925.9 lb			
PACKING CRATE SIZE	105 x 57 x 96 (cm) 41.3x22.4x37.8 (in)				105 x 57 x 96 (cm) 41.3x22.4x37.8(in)			
TELEPHONE INTERFERENCE	50 Hz THF<2%				60 Hz TIF<50			
COOLING AIR	0.216 m³/sec 458 cfm				0.281 m³/sec 595 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	85	85	85	79	93.8	97.5	100	100
Xd DIR. AXIS SYNCHRONOUS	2.43	2.20	2.04	1.59	2.66	2.47	2.32	2.21
X'd DIR. AXIS TRANSIENT	0.18	O.17	0.16	0.13	0.20	0.19	0.17	0.17
X"d DIR. AXIS SUBTRANSIENT	0.13	0.12	0.11	0.09	0.14	0.13	0.12	0.12
Xq QUAD. AXIS REACTANCE	1.12	1.01	0.94	0.78	1.22	1.13	1.06	1.01
X"q QUAD. AXIS SUBTRANSIENT	0.17	0.15	0.14	0.12	0.16	0.14	0.13	0.12
XL LEAKAGE REACTANCE	0.07	0.06	0.05	0.06	0.08	0.07	0.07	0.07
X2 NEGATIVE SEQUENCE	0.18	0.14	0.13	0.11	0.16	0.14	0.13	0.12
X0 ZERO SEQUENCE	0.11	0.10	0.09	0.08	0.11	0.10	0.10	0.09
REACTANCES ARE SATURATED	VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED							
T'd TRANSIENT TIME CONST.	0.03 s							
T"d SUB-TRANSTIME CONST.	0.005 s							
T'do O.C. FIELD TIME CONST.	0.75 s							
Ta ARMATURE TIME CONST.	0.07 s							
SHORT CIRCUIT RATIO	1/Xd							

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 1.3% per 100 m (328 ft.) elevation above 2500 m (8200 ft.). Temperature: Derate 1.0% per 10°C (18°F) temperature above 25°C (77°F).

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

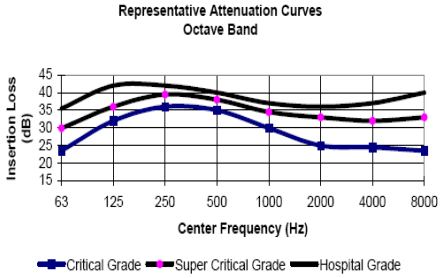
Engine Senders: - Oil pressure (1/8" NPT), Temperature (1/4"NPT) (Supplied loose for engine mounting).

Requirements: - Exceeds requirements of CSA 282 and NFPA 110 Level

OPTIONAL SILENCER ACCORDING TO THE APPLICATION

Silencer with different levels from attenuation

- Critical Grade
- Super Critical Grade
- Hospital Grade



Levels from attenuation

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

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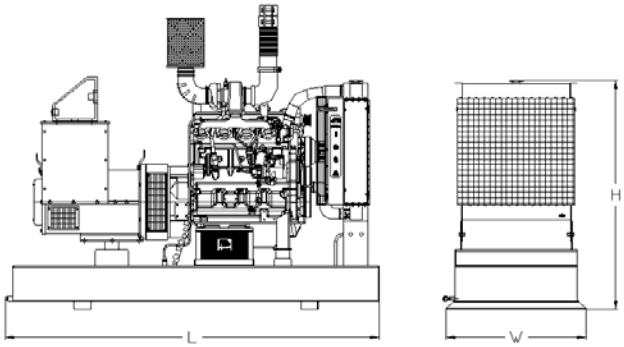
DIMENSIONS



LENGTH	WIDTH	HEIGHT
mm (in)	mm (in)	mm (in)
2080 (82)	800(31.5)	1299(51.14)

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 ☐