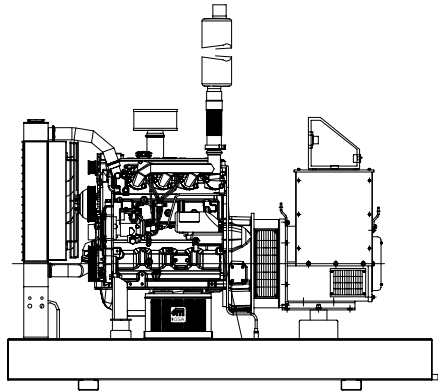




# MAQUINARIA IGSA POWER GENERATION SYSTEMS



**MODEL: GSJD10040M**  
**DIESEL ENGINE: JOHN DEERE**  
**MODEL: 4045DF150 TIER 1**  
**CAPACITY: 40kW; 1800 RPM**

RATINGS RANGE	
PRIME hp (kW)	STANDBY hp (kW)
53.6- 61.6 (40-42)	59-61.6 (44-46)

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 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, 4045DF150 TIER 1**

**5** Marathon or Stamford Alternator

**6** Radiator

**7** Control MEC 310 (panel USC300)

**8** Base of structural steel

## GENERAL FEATURES

- IGSA GENSET of, **40 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 genset engine is certified by the Environmental Protection Agency (EPA) to conform to Tier 1 nonroad emissions regulations.
- The generator set its components are tested factory-built, and production-tested.



WE ARE THE BEST IN MANUFACTURING THE POWER GENERATION SYSTEMS AND ADDITION CONSTANTLY INNOVATION.

[www.igsa.com.mx](http://www.igsa.com.mx)  
All rights reserved.  
Printed in MEXICO

# ENGINE SPECIFICATION DATA MODEL 4045DF150

## Weight 387 Kg (851 Lb)

General Data		
Model	4045DF150	
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	17.6 : 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	Natural	
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 (598)	
Height--in.(mm)	33.6 (854)	
Weight, dry--lb (kg) (Includes SAE 4 flywheel housing, RE28119 flywheel, starter and electrics.)	851 (387)	
Center of Gravity Location		
From Rear Face of Block (X-axis)--in.(mm)	9.3 (235)	
Right of Crankshaft (Y-axis)--in.(mm)	0.3 (7)	
Above Crankshaft (Z-axis)--in.(mm)	5.7 (144)	
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)	53.6 - 61.6 (40 - 42)	59 - 61.6 (44 - 46)
Rated Speed--rpm	100	1800
Low Idle Speed--rpm	1400	1400
BMEP--psi (kPa)	103 (707)	113 (781)
Friction Power		
At Rated Speed--hp (kW)	17 (13)	17 (13)
Altitude Capability--ft (m)	5000 (1525)	5000 (1525)
Ratio--Air : Fuel.	19.1:5	19.1:1
Noise--dB(A) @ 1 m	94	94
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)	107 (3)	117 (3.3)
Intake Manifold Pressure--psi (kPa)	Ambient	Ambient
Rec'd. Intake Pipe Dia--in.(mm)	3 (76.2)	3 (76.2)

Electrical System		
Recommended Battery Capacity (CCA)		
12 Volt System--amp		640
14 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 Capacity, High--qt (L)	8 (7.5)	8 (7.5)
Oil Pan Capacity, Low--qt (L)	7 (6.5)	7 (6.5)
Total Engine Oil Capacity With Filters--qt (L)	9 (8.5)	9 (8.5)
Engie Angularity Limits (Continuous) Any Direction--degrees	20	20
Exhaust System	Prime	Sandby
Exhaust Flow--ft3/min (m3/min)	318 (9)	318 (9)
Exhaust Temperature--°F (°C)	1060(571)	1103(595)
Max. Allow. Back Press.--in.H2O (kPa)	30 (7.5)	30 (7.5)
Recm'd Exhaust Pipe Dia--in.(mm)	2.5 (63.5)	2.5 (63.5)
Cooling System	Prime	Sandby
Engine Heat Reject--BTU/min (kW)	1649 (29)	1820 (32)
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
Total Fuel Flow--lb/hr (kg/hr)	23.5 (10.7)	25.7 (11.7)
Fuel Consumption--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	7.7 (3.5)	8.1 (3.7)
50 % Power	13 (5.9)	14.3 (6.5)
75 % Power	18.3 (8.3)	20 (9.1)
100 % Power	23.5 (10.7)	25.7 (11.7)



**WE ARE THE BEST IN MANUFACTURING THE POWER GENERATION SYSTEMS AND ADDITION CONSTANTLY INNOVATION.**

[www.iqsa.com.mx](http://www.iqsa.com.mx)  
All rights reserved.  
Printed in MEXICO



## STAMFORD ELECTRIC ALTERNATOR MODEL UC1224C Weight 249 Kg (598 Lb)

<b>CONTROL SYSTEM</b>	<b>SEPARATELY EXCITED BY P.M.G.</b>		
<b>A.V.R.</b>	<b>MX321</b>	<b>MX341</b>	
<b>VOLTAGE REGULATION</b>	<b>(+/- 0.5%)</b>	<b>(+/- 1.0%)</b>	<b>WITH 4% ENINE GOVERNING</b>
<b>SUSTAINED SHORT CIRCUIT</b>	<b>REFERENT TO SHOT CIRCUIT DECREMENT CURRENT</b>		
<b>CONTROL SYSTEM</b>	<b>SELF EXCITED</b>		
<b>A.V.R.</b>	<b>MX460</b>	<b>MX440</b>	<b>MX421</b>
<b>VOLTAGE REGULATION</b>	<b>(+/- 0.5%)</b>	<b>(+/- 1.0%)</b>	<b>(+/- 0.5%) WITH 4% ENINE GOVERNING</b>
<b>SUSTAINED SHORT CIRCUIT</b>	<b>SERIES CONTROL DOES NOT SUSTAIN SHORT CIRCUIT CURRENT</b>		

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	0.181 Ohms PER PHASE AT 22°C (71.6°F) SERIES STAR CONNECTED							
ROTOR WDG. RESISTANCE	0.59 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)							
WEIGHT COMP. GENERATOR	1 BEARING				2 BEARING			
WEIGHT WOUND STATOR	271 kg (598 Lb)				280 kg (617 Lb)			
WEIGHT WOUND ROTOR	75 kg (165Lb)				75 kg (165Lb)			
WR <sup>2</sup> INERTIA	78.95 Kg (174 Lb)				70.58 kg (156 Lb)			
SHIPPING WEIGHTS in a crate	0.3987 kgm <sup>2</sup> (0.08LbFt <sup>2</sup> )				0.3667 kgm <sup>2</sup> (0.08LbFt <sup>2</sup> )			
PACKING CRATE SIZE	294 kg (648 Lb)				301 kg (664 Lb)			
	97 x 57 x 96 (cm) (38.1x22.4x37.8 In)				97 x 57 x 96 (cm) (38.1x22.4x37.8 In)			
TELEPHONE INTERFERENCE	50 Hz				60 Hz			
COOLING AIR	THF<2%				TIF<50			
	0.216 m <sup>3</sup> /sec 458 cfm				0.281 m <sup>3</sup> /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	42.5	42.5	42.5	40	50	52.5	52.5	55
Xd DIR. AXIS SYNCHRONOUS	2.42	2.19	2.03	1.70	0.03	2.84	2.60	2.50
X'd DIR. AXIS TRANSIENT	0.19	0.17	0.16	0.13	0.22	0.21	0.19	0.18
X''d DIR. AXIS SUBTRANSIENT	0.12	0.11	0.10	0.08	0.15	0.14	0.13	0.12
Xq QUAD. AXIS REACTANCE	1.12	1.01	0.94	0.79	1.40	1.31	1.20	1.16
X''q QUAD. AXIS SUBTRANSIENT	0.16	0.14	0.13	0.11	0.14	0.13	0.12	0.12
XL LEAKAGE REACTANCE	0.08	0.08	0.07	0.06	0.10	0.09	0.09	0.08
X2 NEGATIVE SEQUENCE	0.14	0.13	0.12	0.10	0.14	0.13	0.12	0.12
X0 ZERO SEQUENCE	0.10	0.09	0.08	0.07	0.10	0.09	0.09	0.08
REACTANCES ARE SATURATED				VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED				
T'd TRANSIENT TIME CONST.	0.025 s							
T''d SUB-TRANSTIME CONST.	0.006 s							
T'do O.C. FIELD TIME CONST.	0.65 s							
Ta ARMATURE TIME CONST.	0.005 s							
SHORT CIRCUIT RATIO	1/Xd							



WE ARE THE BEST IN MANUFACTURING THE POWER GENERATION SYSTEMS AND ADDITION CONSTANTLY INNOVATION.

[www.igs.com.mx](http://www.igs.com.mx)  
All rights reserved.  
Printed in MEXICO

## 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)

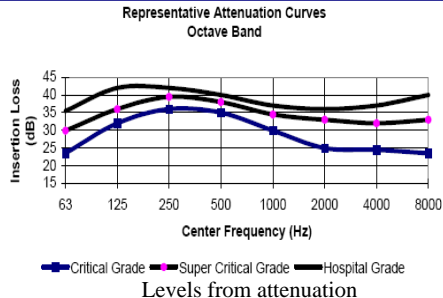
## FEATURES

- 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



## 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

#### Engine

---

---

---

---

---

---

---

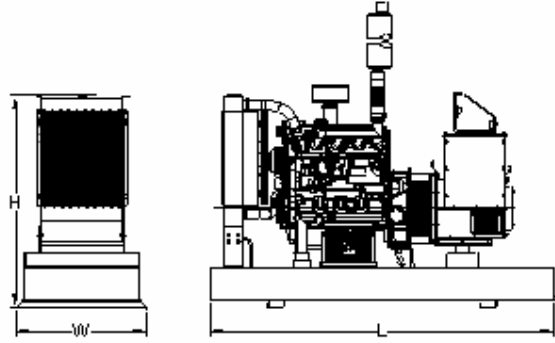
---



WE ARE THE BEST IN MANUFACTURING THE POWER GENERATION SYSTEMS AND ADDITION CONSTANTLY INNOVATION.

www.usc.com.mx  
All rights reserved.  
Printed in MEXICO

## DIMENSIONS



LENGTH	WIDTH	HEIGHT
mm (in)	mm (in)	mm (in)
2100 (82.7)	800(31)	1316 (51.8)

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

