

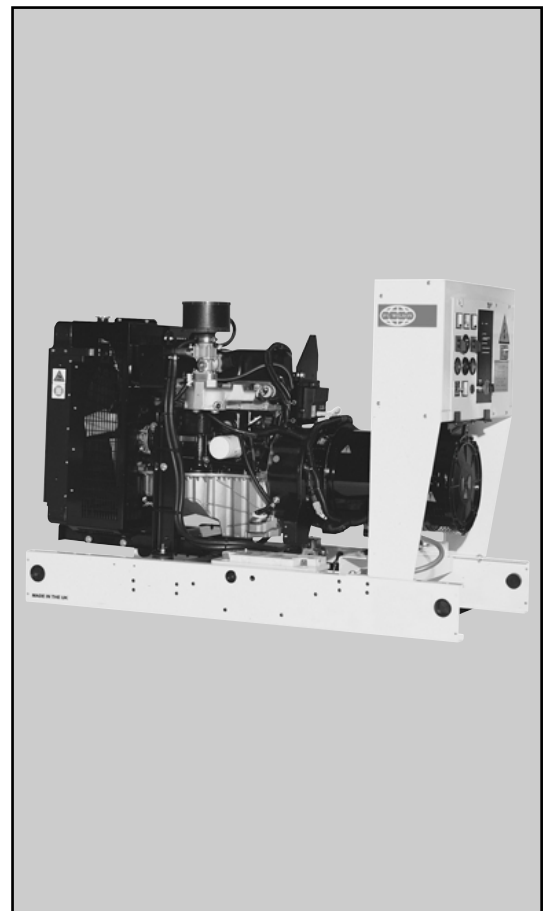
# FG40P1/FG50E1



Output Ratings		
Generating Set Model	FG40P1/FG50E1	
	LPG	
	Prime*	Standby*
380 – 415V, 50 Hz	40.0 kVA	50.0 kVA
	32.0 kW	40.0 kW
480V, 60 Hz	47.0 kVA	56.0 kVA
	37.5 kW	45.0 kW

\* Refer to ratings definitions on page 4.  
Ratings at 0.8 pf

Technical Data		
Engine Make & Model	Ford ESG 642	
Alternator Model	LL2014C	
Base Frame Type	Heavy Duty Fabricated Steel	
Circuit Breaker Type/Rating	3 Pole MCCB	
Frequency	50 Hz	60 Hz
Engine Speed	1500	1800
Fuel Consump m <sup>3</sup> /hr (cfh) LPG	6.5 (229)	7.6 (269)



## Weights & Dimensions

Weights: kg (lbs)		Dimensions: mm (in)	
Wet (+ lube oil & coolant)	712 (1566)	Length	2165 (86.6)
		Width	890 (35.6)
		Height	1239 (49.6)



## Engine Technical Data

Physical Data		Air System		50 Hz	60 Hz
Manufacturer:	Ford	Air filter Type:	Replaceable Element		
Model:	ESG642	Combustion Air Flow LPG:			
No. of Cylinders/Alignment:	V6	m <sup>3</sup> /min (cfm) -Standby:	2.4 (85.0)	2.9 (102.0)	
Cycle:	4 Stroke	-Prime:	2.1 (76.0)	2.6 (91.0)	
Induction:	Natural	Max. Combustion Air Intake			
Cooling Method:	Water	Restriction: kPa (in H <sub>2</sub> O)	2.5 (10.1)	2.5 (10.1)	
Governing Type:	Electronic	Radiator Cooling Airflow:			
Class:	ISO 8528 G2	m <sup>3</sup> /min (cfm)	150 (5293)	180 (6356)	
Compression Ratio:	9.3:1	External Restriction to			
Displacement: L (cu.in):	4.2 (256)	Cooling Airflow: Pa (in Wg)	125 (0.5)	125 (0.5)	
Bore/Stroke: mm (in)	96.8 (3.81) / 95.0 (3.74)				
Engine Electrical System:		Cooling System		50 Hz	60 Hz
-Voltage/Ground	12/Negative	Cooling System Capacity:			
-Battery Charger Amps	95	L (US Gal)	20 (5.3)	20 (5.3)	
Weight: kg (lbs) -		Water Pump Type:	Centrifugal		
(includes lube oil)	712 (1566)	Heat Rejected to Water &			
		Lube Oil: kW (Btu/min)			
		-Standby:	25.3 (1443)	30.8 (1757)	
		-Prime:	22.5 (1284)	27.4 (1564)	
		Heat Radiation to Room			
		kW (Btu/min) -Standby:	20.4 (1161)	24.3 (1382)	
		-Prime:	18.2 (1033)	21.6 (1230)	
		Radiator Fan Load: kW (hp)	0.81 (1.09)	1.4 (1.88)	
Performance	50Hz	60Hz	Lubrication System		
Engine Speed: rpm	1500	1800	Oil Filter Type:	Spin-On, Full Flow	
Gross Engine Power:			Total Oil Capacity L (US Gal)	5.7 (1.5)	
kW (hp) -Standby:	46.0 (61.7)	57.8 (77.4)	Oil Pan L (US Gal):	4.7 (1.2)	
-Prime:	41.2 (55.5)	52.0 (69.7)	Oil Type:	API CF-4	
BMEP: kPa (psi)			Cooling Method	Water	
-Standby:	876 (127.1)	918 (133.2)			
-Prime:	787 (114.2)	826 (119.9)	Exhaust System	50 Hz	60 Hz
			Max. Allowable Back		
			Pressure: kPa (in H <sub>2</sub> O)	15.3 (61.6)	15.3 (61.6)
			LPG: m <sup>3</sup> /min (cfm)		
			- Standby:	5.0 (177)	6.0 (212)
			- Prime:	4.5 (158)	5.3 (189)
			Exhaust Gas Temperature: °C (°F)		
			LPG: °C (°F)		
			- Standby:	631 (1168)	653 (1207)
			- Prime:	615 (1139)	630 (1166)
Fuel System					
Fuel Filter Type:	Replaceable Element				
Recommended Fuel:	LPG				
Fuel Consumption LPG: m <sup>3</sup> /hr (cfh)					
<b>Prime</b>	<b>110% Load</b>	<b>100% Load</b>	<b>75% Load</b>	<b>50% Load</b>	
50 Hz	6.5 (230)	5.8 (205)	4.4 (155)	3.0 (106)	
60 Hz	7.6 (267)	6.5 (230)	4.9 (173)	3.3 (117)	
<b>Standby</b>					
50 Hz	n/a	6.5 (230)	4.9 (173)	3.3 (117)	
60 Hz	n/a	7.6 (267)	5.8 (205)	3.9 (138)	

## Alternator Performance Data

Data Item	50 Hz				60 Hz				
	415/240	400/230 230/115 200/115	380/220 220/110	220/127	480/227 240/139	380/220 220/110	240/120 208/120	230/115	220/127 440/254
<b>Motor Starting Capability* kVA</b>	99	84	76	99	98	65	76	71	84
<b>Short Circuit Capacity** %</b>	300	300	300	300	300	300	300	300	300
<b>Reactances: Per Unit</b>									
<b>X<sub>d</sub></b>	2.64	2.85	3.15	2.35	2.64	4.2	3.51	3.8	3.16
<b>X'<sub>d</sub></b>	0.11	0.12	0.14	0.1	0.11	0.18	0.15	0.17	0.14
<b>X''<sub>d</sub></b>	0.056	0.061	0.067	0.05	0.056	0.09	0.075	0.081	0.067

Reactances shown are applicable to prime ratings

\* Based on 30% voltage dip. Improved motor starting is available with optional AREP excitation

\*\* With optional AREP excitation

## Alternator Technical Data

Physical Data		Operating Data	
<b>Manufacturer:</b>	FG Wilson	<b>Overspeed: RPM</b>	2250
<b>Model:</b>	LL2014C	<b>Voltage Regulation (steady state)</b>	+/- 5%
<b>No. of Bearings:</b>	1	<b>Wave Form NEMA =TIF</b>	<50
<b>Insulation Class:</b>	H	<b>Wave Form IEC=THF</b>	<2%
<b>Winding Pitch Code:</b>	2/3 (No. 6)	<b>Total Harmonic Content LL/LN</b>	<4%
<b>Wires:</b>	12	<b>Radio Interference</b>	Suppression is in line with British Standard BSEN50081 and BSEN50082
<b>Ingress Protection Rating:</b>	IP23	<b>Radiant Heat: kW (Btu/min)</b>	
<b>Excitation System:</b>	SHUNT	-50 Hz:	6.4 (364)
<b>AVR Model:</b>	R230	-60 Hz:	7.4 (421)

## Technical Data

### 3 Phase Ratings and Performance at 50 Hz, 1500 RPM

### 3 Phase Ratings and Performance at 60 Hz, 1800 RPM

Voltage	Model: FG40P1 Prime		Model: FG50E1 Standby		Voltage	Model: FG40P1 Prime		Model: FG50E1 Standby	
	kVA	kW	kVA	kW		kVA	kW	kVA	kW
415/240	40.0	32.0	50.0	40.0	480/277	47.0	37.5	56.0	45.0
400/230	40.0	32.0	50.0	40.0	440/254	47.0	37.5	56.0	45.0
380/220	40.0	32.0	50.0	40.0	380/220	47.0	37.5	55.0	44.0
230/115	40.0	32.0	50.0	40.0	240/139	47.0	37.5	56.0	45.0
220/127	40.0	32.0	50.0	40.0	240/120	47.0	37.5	56.0	45.0
220/110	40.0	32.0	50.0	40.0	230/115	47.0	37.5	56.0	45.0
200/115	40.0	32.0	50.0	40.0	220/127	47.0	37.5	56.0	45.0
					220/110	47.0	37.5	55.0	44.0
					208/120	47.0	37.5	56.0	45.0

These ratings are based on generating set performance using LPG fuel.

## Definitions

### Standby Rating

These ratings are applicable for supplying continuous electrical power (at variable load) in the event of a utility power failure. No overload is permitted on these ratings. The alternator on this model is peak continuous rated (as defined in ISO8528-3).

### Prime Rating

These ratings are applicable for supplying continuous electrical power (at variable load) in lieu of commercially purchased power. There is no limitation to the annual hours of operation and this model can supply 10% overload power for 1 hour in 12 hours.

### Standard Reference Conditions

Ratings in accordance with ISO8528. All engine performance data based on the above mentioned maximum continuous ratings. Fuel Consumption data assumes complete combustion of LPG fuel with a calorific value of 95MJ/m<sup>3</sup> and of Natural gas with a calorific value of 34.4MJ/m<sup>3</sup>.

## General Data

### Documents

A full set of operation and maintenance manuals, circuit wiring diagrams, and commissioning/fault finding instruction leaflets.

### Generating Set Standards

The equipment meets the following standards: BS5000, ISO 8528, ISO 3046, IEC 60034, VDE 0530.

FG Wilson is a fully accredited ISO9001 company.

### Warranty

All equipment carries full manufacturer's warranty. Extended warranty terms available. For details on warranty cover please contact your local dealer, or visit our website, [www.FGWilson.com](http://www.FGWilson.com)

