

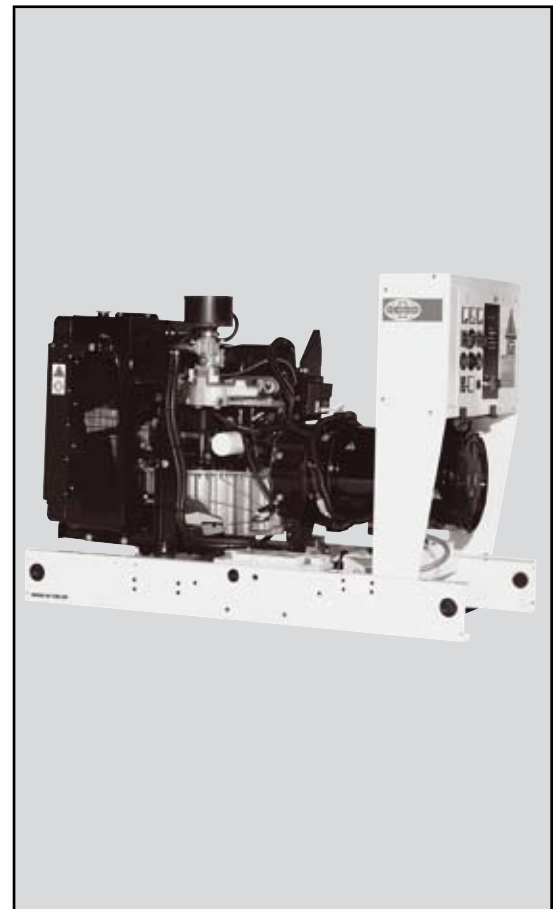
# FG34P1/FG40E1



Output Ratings				
Generating Set Model	FG34P1/FG40E1			
	LPG		Nat Gas	
	Prime*	Standby*	Prime*	Standby*
380 – 415V, 50 Hz	34.0 kVA	40.0 kVA	34.0 kVA	40.0 kVA
	27.2 kW	32.0 kW	27.2 kW	32.0 kW
480V, 60 Hz	45.0 kVA	50.0 kVA	45.0 kVA	50.0 kVA
	36 kW	40.0 kW	36 kW	40.0 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	5.2 (184)	6.1 (216)
Fuel Consump m <sup>3</sup> /hr (cfh) NG	14.5 (510)	17 (600)



## Weights & Dimensions

Weights: kg (lbs)		Dimensions: mm (in)	
Wet (+ lube oil & coolant)	692 (1522)	Length	2165 (86.6)
		Width	890 (35.6)
		Height	1239 (49.6)



FG Wilson has manufacturing facilities in the following locations:

Northern Ireland • Brazil • China • India • USA

With headquarters in Northern Ireland, FG Wilson operates through a Global Dealer Network. To contact your local Sales Office please visit the FG Wilson website at

[www.FGWilson.com](http://www.FGWilson.com)



## 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:	2.2 (78.0)	2.7 (95.0)	
Cycle:	4 Stroke	-Prime:	1.9 (67.0)	2.4 (85.0)	
Induction:	Natural	Combustion Air Flow Natural Gas:			
Cooling Method:	Water	m <sup>3</sup> /min (cfm) -Standby:	2.2 (78.0)	2.7 (95.0)	
Governing Type:	Electronic	-Prime:	1.9 (67.0)	2.4 (85)	
Class:	ISO 8528 G2	Max. Combustion Air Intake			
Compression Ratio:	9.3:1	Restriction: kPa (in H <sub>2</sub> O)	2.5 (10.1)	2.5 (10.1)	
Displacement: L (cu.in):	4.2 (256)	Radiator Cooling Airflow:			
Bore/Stroke: mm (in)	96.8 (3.8) / 95.0 (3.74)	m <sup>3</sup> /min (cfm)	150 (5293)	180 (6356)	
Engine Electrical System:		External Restriction to			
-Voltage/Ground	12/Negative	Cooling Airflow: Pa (in Wg)	125 (0.5)	125 (0.5)	
-Battery Charger Amps	95				
Weight: kg (lbs) - (includes lube oil)	692 (1522)				
Performance		Cooling System		50 Hz	60 Hz
Engine Speed: rpm	1500	Cooling System Capacity:			
Gross Engine Power:		L (US Gal)	20 (5.3)	20 (5.3)	
kW (hp) -Standby:	46.0 (61.7)	Water Pump Type:	Centrifugal		
-Prime:	41.2 (55.5)	Heat Rejected to Water & Lube Oil: kW (Btu/min)			
BMEP: kPa (psi)		-Standby:	23.4 (1330)	27.5 (1564)	
-Standby:	876 (127.1)	-Prime:	20.8 (1184)	24.5 (1392)	
-Prime:	787 (114.2)	Heat Radiation to Room			
	826 (119.9)	kW (Btu/min) -Standby:	18.4 (1049)	21.7 (1234)	
		-Prime:	16.4 (934)	19.3 (1098)	
		Radiator Fan Load: kW (hp)	0.81 (1.09)	1.4 (1.88)	
Fuel System		Lubrication System			
Fuel Filter Type:	Replaceable Element	Oil Filter Type:	Spin-On, Full Flow		
Recommended Fuel:	Natural Gas with lower calorific value of 34.71MJ/ m <sup>3</sup> and minimum methane number of 70 LPG	Total Oil Capacity L (US Gal)	5.7 (1.5)		
Fuel Consumption LPG: m <sup>3</sup> /hr (cfh)		Oil Pan L (US Gal):	4.7 (1.2)		
		Oil Type:	API CF-4		
		Cooling Method	Water		
Prime		Exhaust System		50 Hz	60 Hz
110% Load	100% Load	75% Load	50% Load		
50 Hz	5.2 (184)	4.7 (166)	3.6 (127)	2.4 (84.7)	
60 Hz	6.1 (215)	5.5 (194)	4.2 (148)	2.8 (98.9)	
Standby		Max. Allowable Back Pressure: kPa (in H <sub>2</sub> O)		15.3 (61.6)	15.3 (61.6)
50 Hz	n/a	5.2 (184)	4.1 (145)	2.7 (95.3)	
60 Hz	n/a	6.1 (215)	4.6 (162)	3.1 (109)	
Fuel Consumption Natural Gas: m <sup>3</sup> /hr (cfh)		Exhaust Gas Flow:			
		LPG: m <sup>3</sup> /min (cfm)			
		- Standby:	4.3 (152)	4.0 (141)	
		- Prime:	3.8 (135)	4.7 (166)	
		Natural Gas: m <sup>3</sup> /min (cfm)			
		- Standby:	4.3 (152)	5.3 (187)	
		- Prime:	3.8 (135)	4.7 (166)	
		Exhaust Gas Temperature: °C (°F)			
		LPG: °C (°F) - Standby:	595 (1104)	630 (1163)	
		- Prime:	575 (1067)	610 (1130)	
		Natural Gas: °C (°F)			
		- Standby:	580 (1076)	610 (1130)	
		- Prime:	560 (1040)	595 (1104)	
Standby					
50 Hz	n/a	14.5 (512)	11.0 (388)	7.3 (258)	
60 Hz	n/a	17.0 (600)	13.0 (459)	8.6 (305)	

## 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>	89	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>	2.35	2.53	2.81	2.09	2.37	3.79	3.16	3.42	2.82
<b>X'<sub>d</sub></b>	0.1	0.11	0.12	0.09	0.1	0.16	0.14	0.15	0.12
<b>X''<sub>d</sub></b>	0.051	0.054	0.06	0.045	0.051	0.081	0.068	0.073	0.061

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:	5.0 (284)
<b>AVR Model:</b>	R230	-60 Hz:	5.9 (336)

## Technical Data

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

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

Voltage	Model: FG34P1 Prime		Model: FG40E1 Standby		Voltage	Model: FG34P1 Prime		Model: FG40E1 Standby	
	kVA	kW	kVA	kW		kVA	kW	kVA	kW
415/240	34.0	27.2	40.0	32.0	480/277	45.0	36.0	50.0	40.0
400/230	34.0	27.2	40.0	32.0	440/254	45.0	36.0	50.0	40.0
380/220	34.0	27.2	40.0	32.0	380/220	45.0	36.0	50.0	40.0
230/115	34.0	27.2	40.0	32.0	240/139	45.0	36.0	50.0	40.0
220/127	34.0	27.2	40.0	32.0	240/120	45.0	36.0	50.0	40.0
220/110	34.0	27.2	40.0	32.0	230/115	45.0	36.0	50.0	40.0
200/115	34.0	27.2	40.0	32.0	220/127	45.0	36.0	50.0	40.0
					220/110	45.0	36.0	50.0	40.0
					208/120	45.0	36.0	50.0	40.0

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)

