



## GEH220-2

***Diesel Generator Set  
Exclusively from your Caterpillar® dealer***

EU Stage II Emissions Compliant

Output Ratings		
Generating Set Model	Prime*	Standby*
380-415V, 50Hz	200.0 kVA 160.0 kW	220.0 kVA 176.0 kW
480V, 60 Hz	225.0 kVA 180.0 kW	250.0 kVA 200.0 kW

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

Technical Data		
Engine Make & Model:	Perkins 1306C-E87TAG4	
Alternator Model:	LL5014F	
Base Frame Type:	Heavy Duty Fabricated Steel	
Circuit Breaker Type:	3 Pole MCCB	
Frequency:	50 Hz	60 Hz
Engine Speed: RPM	1500	1800
Fuel Tank Capacity: litres (US gal)	350 (92.5)	
Fuel Consumption, Prime: l/hr (US gal/hr)	49.4 (13.1)	56.6 (15.0)
Fuel Consumption, Standby : l/hr (US gal/hr)	54.3 (14.3)	61.1 (16.1)

# Engine Technical Data

Physical Data	
Manufacturer:	Perkins
Model:	1306C-E87TAG4
No. of Cylinders/Alignment:	6 / In Line
Cycle:	4 Stroke
Induction:	Turbocharged Air To Air Charge Cooled
Cooling Method:	Water
Governing Type:	Electronic
Governing Class:	ISO 8528 G2
Compression Ratio:	16.9:1
Displacement: l (cu.in)	8.7 (530.9)
Bore/Stroke: mm (in)	116.6 (4.6)/135.9 (5.4)
Moment of Inertia: kg m <sup>2</sup> (lb. in <sup>2</sup> )	1.54 (5266)
Engine Electrical System:	
-Voltage/Ground:	24/Negative
-Battery Charger Amps:	45
Weight: kg (lb) - Dry:	671 (1479)
- Wet:	698 (1539)

Air System	50 Hz	60 Hz
Air Filter Type:	Paper Element	
Combustion Air Flow:		
m <sup>3</sup> /min (cfm)	-Standby: 14.9 (526)	20.2 (713)
	-Prime: 14.9 (526)	20.2 (713)
Max. Combustion Air Intake		
Restriction: kPa (in H <sub>2</sub> O)	6.2 (25.0)	6.2 (25.0)
Radiator Cooling Air Flow:		
m <sup>3</sup> /min (cfm)	424.2 (14980)	560.4 (19790)
External Restriction to		
Cooling Air Flow: Pa (in H <sub>2</sub> O)	125 (0.5)	125 (0.5)

Cooling System	50 Hz	60 Hz
Cooling System Capacity:		
l (US gal)	45.3 (12.0)	45.3 (12.0)
Water Pump Type:	Centrifugal	
Heat Rejected to Water & Lube Oil: kW (Btu/min)		
-Standby:	86.0 (4891)	88.0 (5004)
-Prime:	79.0 (4493)	73.0 (4151)
Heat Radiation to Room:		
kW (Btu/min)	-Standby: 34.0 (1934)	34.0 (1934)
	-Prime: 31.0 (1763)	29.0 (1649)
Radiator Fan Load: kW (hp)	10.3 (13.8)	17.4 (23.3)

Cooling system designed to operate in ambient conditions up to 50°C (122°F). Contact your local Olympian dealer for power ratings at specific site conditions.

Lubrication system	
Oil Filter Type:	Spin-On, Full Flow
Total Oil Capacity l (US gal):	26.4 (7.0)
Oil Pan l (US gal):	22.7 (6.0)
Oil Type:	API-CH-4
Cooling Method:	Water

Performance	50 Hz	60 Hz
Engine Speed: RPM	1500	1800
Gross Engine Power: kW (hp)		
-Standby:	228.5 (306.0)	246.8 (331.0)
-Prime:	209.1 (280.0)	224.4 (301.0)
BMEP: kPa (psi)		
-Standby:	2099.0 (304.5)	1890.0 (274.1)
-Prime:	1922.0 (278.7)	1718.0 (249.2)
Regenerative Power: kW	20.8	28.6

Fuel System				
Fuel Filter Type:	Replaceable Element			
Recommended Fuel:	Class A2 Diesel			
Fuel Consumption: l/hr (US gal/hr)				
	110% Load	100% Load	75% Load	50% Load
Prime				
50 Hz	54.3 (14.3)	49.4 (13.1)	37.4 (9.9)	25.6 (6.8)
60 Hz	61.1 (16.1)	56.6 (15.0)	44.6 (11.8)	30.7 (8.1)
Standby				
50 Hz	54.3 (14.3)	41.0 (10.8)	28.0 (7.4)	
60 Hz	61.1 (16.1)	48.7 (12.9)	33.8 (8.9)	

(based on diesel fuel with a specific gravity of 0.85 and conforming to BS2869, Class A2)

Exhaust System	50 Hz	60 Hz
Silencer Type:	Level 1	
Silencer Noise Reduction	SD100 (0)	
Pressure Drop Across		
Silencer System: kPa (in Hg)	8.70 (2.569)	8.70 (2.569)
Silencer Noise Reduction		
Level: dB	12	10
Max. Allowable Back		
Pressure: kPa (in. Hg)	10.7 (3.2)	10.7 (3.2)
Exhaust Gas Flow:		
m <sup>3</sup> /min (cfm)	-Standby: 29.7 (1049)	49.2 (1737)
	-Prime: 27.9 (985)	47.7 (1685)
Exhaust Gas Temperature: °C (°F)		
m <sup>3</sup> /min (cfm)	-Standby: 573 (1064)	487 (908)
	-Prime: 545 (1013)	473 (884)

## Alternator Performance Data

Data Item	50 Hz				60 Hz				
	415/240V	400/230V 230/115V 200/115V	380/220V 220/110V	220/127V	480/277V 240/139V	380/220V 220/110V	240/120V 208/120V	230/115V	440/254V 220/127V
Motor Starting Capability* kVA	414	389	356	457	454	303	355	332	392
Short Circuit Capacity** %	300	300	300	300	300	300	300	300	300
Reactances: Per Unit									
Xd	2.794	3.008	3.332	2.486	2.820	4.200	3.754	3.970	3.355
X'd	0.137	0.148	0.163	0.122	0.140	0.206	0.180	0.195	0.160
X''d	0.082	0.089	0.098	0.073	0.083	0.124	0.111	0.117	0.099

Reactances shown are applicable to standby ratings.

\* Based on 30% voltage dip.

\*\* With optional Permanent Magnet generator or AREP excitation.

## Alternator Technical Data

Physical Data	
Manufacturer:	OLYMPIAN
Model:	LL5014F
No. of Bearings:	1
Insulation Class:	H
Winding Pitch - Code:	2/3 - 6
Wires:	12
Ingress Protection Rating:	IP23
Excitation System:	SHUNT
AVR Model:	R448

Operating Data	
Overspeed: RPM	2250
Voltage Regulation (steady state) (%):	+/- 0.5
Wave Form NEMA = TIF:	50
Wave Form IEC = THF:	2.0%
Total Harmonic Content LL/LN:	4.0%
Radio Interference:	Supression is in line with European Standard EN61000-6
Radiant Heat: kW (Btu/min)	
-50 Hz:	15.1 (859)
-60 Hz:	16.9 (961)

## Technical Data

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

Voltage	Prime		Standby	
	kVA	kW	kVA	kW
415/240V	200.0	160.0	220.0	176.0
400/230V	200.0	160.0	220.0	176.0
380/220V	200.0	160.0	220.0	176.0
230/115V	200.0	160.0	220.0	176.0
220/127V	200.0	160.0	220.0	176.0
220/110V	200.0	160.0	220.0	176.0
200/115V	200.0	160.0	220.0	176.0

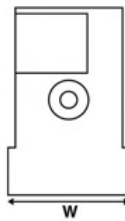
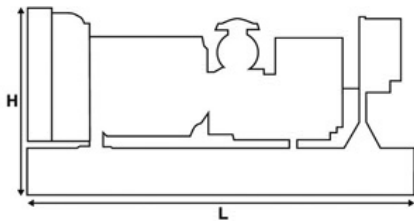
### 3 Phase Ratings and Performance at 60 Hz, 1800 RPM

Voltage	Prime		Standby	
	kVA	kW	kVA	kW
480/277V	225.0	180.0	250.0	200.0
220/127V	225.0	180.0	250.0	200.0
380/220V	210.0	168.0	231.0	184.8
240/120V	225.0	180.0	249.0	199.2
230/115V	225.0	180.0	249.0	199.2
440/254V	220.0	176.0	242.0	193.6
220/110V	210.0	168.0	231.0	184.8
208/120V	225.0	180.0	250.0	200.0
240/139V	225.0	180.0	249.0	199.2

## Weights & Dimensions

Weights: kg (lb)	
Net (+ lube oil)	2015 (4442)
Wet (+ lube oil & coolant)	2052 (4524)
Fuel, lube oil & coolant	2348 (5176)

Dimensions: mm (in)	
Length	2960 (116.5)
Width	1003 (39.5)
Height	1718 (67.6)



**Note:** General configuration not to be used for installation. See general dimension drawings for detail.

## 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 ISO 8528-3).

### 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

Note: Standard reference conditions 25°C (77°F) air inlet temp, 100m (328ft) A.S.L. 30% relative humidity. Fuel consumption data at full load with diesel fuel with specific gravity of 0.85 and conforming to BS2869: 1998, Class A2.

## General Data

### Documents

A full set of operation and maintenance manuals and circuit wiring diagrams.

### Quality Standards

BS4999, BS5000, BSEN60034, BSEN61000, IEC60034.

### Warranty

All equipment carries full manufacturer's warranty.