

Exclusively from your Caterpillar® dealer



## GEH220 (3-Phase)

### 50 HZ

STANDBY 220 kVA / 176 kW

PRIME 200 kVA / 160 kW

### 60 HZ

STANDBY 250 kVA / 200 kW

PRIME 225 kVA / 180 kW

## FEATURES

### GENERATING SET

- 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

### ENGINE

- Industrial water cooled diesel engine
- Governor, electronic
- Electrical system, 24 VDC
- Cartridge type fuel and oil filters
- Air filter
- Battery(ies), rack and cables

### GENERATOR

- Self excited brushless generator
- Insulation system, class H
- Drip proof generator air intake (IP23)
- Electrical design in accordance with BS5000 Part 99, IEC60034-1, VDE0530, UTE51100

### CONTROL SYSTEM

- PowerWizard 1.0 control panel
- Vibration isolated sheet steel enclosure with hinged lockable door

### MOUNTING ARRANGEMENT

- Heavy-duty fabricated steel base with lifting points
- Anti-vibration pads to ensure vibration isolation
- Engine coupled to generator with flexible disc-coupling
- Baseframe incorporates heavy-duty fabricated steel fuel tank, 8 hours running capacity

### EXHAUST SYSTEM

- Heavy duty industrial capacity exhaust silencer (approximately 10 dB reduction) supplied loose

### COOLING SYSTEM

- Standard ambient temperatures up to 50° C (122° F)
- Fan, fan drive and charging alternator fully guarded
- Antifreeze protection coolant

### CIRCUIT BREAKER

- 3-pole miniature circuit breaker (mcb) < 160 amps and 3-pole molded case circuit breaker (mccb) >= 160 amps
- Vibration isolated sheet steel enclosure with removable cover plate
- Outgoing cable stub-up area directly below circuit breaker

### AUTOMATIC VOLTAGE REGULATOR

- Voltage regulation ±0.5 %
- Provides fast recovery from transient load changes

### EQUIPMENT FINISH

- All electroplated hardware
- Anticorrosive paint protection
- High gloss polyurethane paint for durability and scuff-resistance

### QUALITY STANDARDS

- BS4999, BS5000, BS5514, IEC60034, VDE0530

### DOCUMENTATION

- Operation and maintenance manuals provided
- Wiring diagrams included

### WARRANTY

- All equipment carries full manufacturer's warranty

5 0 H z	S T A N D B Y	2 2 0 k V A / 1 7 6 k W
	P R I M E	2 0 0 k V A / 1 6 0 k W
6 0 H z	S T A N D B Y	2 5 0 k V A / 2 0 0 k W
	P R I M E	2 2 5 k V A / 1 8 0 k W

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## OPTIONAL EQUIPMENT\*

<b>Engine</b>	Droop engine control module for synchronising purposes Lube oil drain Lube oil drain valve Lube oil drain pump High lube oil temperature shutdown
<b>Generator</b>	Anti-condensation heater Quadrature droop upgrade Permanent magnet generator (PMG) AREP Excitation system
<b>Cooling System</b>	Coolant heater Low coolant temperature alarm Low coolant level shutdown Radiator transition flange Coolant drain Coolant drain valve
<b>Fuel System</b>	Integral metal fuel tank Extended capacity metal basetank Manual fuel pump Low fuel level shutdown Low fuel level alarm Remote fuel systems Manual Bypass Valve
<b>Silencer System — Open Unit</b>	Level 2 silencer with mounting kit (approximately 25 dB reduction) Level 3 silencer with mounting kit (approximately 35 dB reduction) Overhead mounting kit for level 1 silencer Level 1, 2 and 3 silencer installation kits
<b>Enclosures</b>	Sound attenuated (EC) canopy
<b>Handling/Trailers</b>	Oil field skid
<b>Controls</b>	Baseframe mounted terminal box instead of control panel PowerWizard 2.0 control panel 6000 Series digital synchronising control panels
<b>Remote Annunciators</b>	PowerWizard annunciator
<b>Circuit Breaker</b>	Upgrades from 3-pole to 4-pole breaker
<b>Transfer Switches</b>	TM Series manual load transfer panels TC Series automatic load transfer panels ATI Series load transfer panels
<b>Certification</b>	European CE certification 50 Hz only

\*Some options may not be available on all models.  
Not all options are listed.

Consult your Olympian representative for more information

50 Hz	STANDBY	220 kVA	/	176 kW
	PRIME	200 kVA	/	160 kW
60 Hz	STANDBY	250 kVA	/	200 kW
	PRIME	225 kVA	/	180 kW

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## SPECIFICATIONS



### GENERATOR

Make ..... Olympian  
 Model ..... LL5014F  
 Type ..... Self-excited, brushless  
 Voltage regulation ..... ±0.5% at steady state from  
 from no load to full load  
 Frequency ..... ±0.25% for constant load from  
 no load to full load  
 Waveform distortion ..... THD <4%  
 Radio interference ..... Compliance with EN61000-6  
 Telephone Interference ..... TIF <50, THF <2%  
 Overspeed limit ..... 2250 rpm  
 Insulation ..... Class H  
 Temperature rise ..... Within Class H limits  
 Deration ..... Consult factory for available outputs

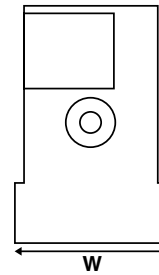
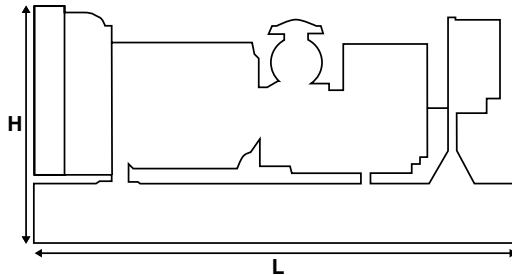


### ENGINE

Manufacturer ..... Perkins  
 Model ..... 1306-E87TA300  
 Type ..... 4-Cycle  
 Aspiration ..... Turbocharged air to air charge cooled  
 Cylinder configuration ..... In-line 6  
 Displacement — L (cu in) ..... 8.7 (531)  
 Bore/stroke — mm (in) ..... 117/136 (4.6/5.4)  
 Compression ratio ..... 16.9:1  
 Engine speed — rpm  
 50 Hz ..... 1500  
 60 Hz ..... 1800

Piston speed — m/sec (ft/sec)  
 50 Hz ..... 6.8 (22.3)  
 60 Hz ..... 8.2 (26.9)  
 Maximum power at rated rpm — kW (hp)  
 Standby  
 50 Hz ..... 224 (300)  
 60 Hz ..... 243 (325)  
 Prime  
 50 Hz ..... 206 (276)  
 60 Hz ..... 224 (300)  
 BMEP — kPa (psi)  
 Standby  
 50 Hz ..... 2058 (299)  
 60 Hz ..... 1857 (269)  
 Prime  
 50 Hz ..... 1888 (274)  
 60 Hz ..... 1711 (248)  
 Regenerative power — kW (hp)  
 50 Hz ..... 20.8 (27.9)  
 60 Hz ..... 28.6 (38.4)  
 Governor  
 Type ..... Electronic  
 Class ..... ISO 8528 G2

## GENERATING SET DIMENSIONS AND WEIGHTS



Model	Length mm (in)	Width mm (in)	Height mm (in)	Weight* kg (lb)
GEH220	2960 (117)	1003 (39.5)	1718 (67.6)	2052 (4524)

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

\*Includes oil and coolant

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60 Hz	STANDBY	250 kVA	/	200 kW
	PRIME	225 kVA	/	180 kW

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## GEH220 (3-Phase)

Generator Set Technical Data		50 Hz		60 Hz	
		Standby	Prime	Standby	Prime
<b>Package Performance</b> Power rating	kVA (kW)	220 (176)	200 (160)	250 (200)	225 (180)
<b>Lubricating System</b> Type: Wet sump Oil filter: Spin-on, full flow Oil cooler: Water Oil type required: API CG4 15W-40 Total lube system capacity Oil pan capacity	L (U.S. Gal) L (U.S. Gal)	26.4 (7.0) 22.7 (6.0)		26.4 (7.0) 22.7 (6.0)	
<b>Fuel System</b> Fuel Tank Capacity Generator set fuel consumption** 100% load 75% load 50% load	L (U.S. Gal) L/hr (U.S. g/hr) L/hr (U.S. g/hr) L/hr (U.S. g/hr)	350 (92.5) 47.0 (12.4) 36.3 (9.6) 25.8 (6.8)	43.1 (11.4) 33.3 (8.8) 23.9 (6.3)	350 (92.5) 56.9 (15.0) 42.1 (11.1) 29.6 (7.8)	50.7 (13.4) 38.1 (10.1) 27.4 (7.2)
<b>Engine Electrical System</b> Voltage/ground: 24 vDC/negative Battery charging alternator ampere rating	amps	45		45	
<b>Cooling System</b> Water pump type: Centrifugal Cooling system capacity Maximum coolant static head Coolant flow rate Minimum temperature to engine Temperature rise across engine Heat rejected to coolant at rated power Total heat radiated to room at rated power Radiator fan load	L (U.S. Gal) m H <sub>2</sub> O (ft H <sub>2</sub> O) L/hr (U.S. gal/hr) °C (°F) °C (°F) kW (Btu/min) kW (Btu/min) kW (hp)	39.8 (10.5) 13.0 (42.5) 17580 (4644) 79.0 (174) 5.0 (9.0) 82.5 (4692) 49.8 (2832) 7.0 (9.4)	73.0 (4151) 39.0 (2207)	39.8 (10.5) 15.5 (51.4) 21060 (5563) 79.0 (174) 5.0 (9.0) 107 (6102) 62.3 (3543) 12.0 (16.1)	96.0 (5454) 52.7 (2997)
<b>Air Requirements</b> Combustion air flow Maximum air cleaner restriction Radiator cooling air External restriction to cooling airflow Generator cooling air	m <sup>3</sup> /min (cfm) kPa (in H <sub>2</sub> O) m <sup>3</sup> /min (cfm) Pa (in H <sub>2</sub> O) m <sup>3</sup> /min (cfm)	9.8 (346) 6.2 (24.9) 324 (11442) 125 (0.5) 25.8 (911)	8.9 (314) 6.2 (24.9) 414 (14620) 125 (0.5) 30.6 (1081)	19.2 (678) 6.2 (24.9) 414 (14620) 125 (0.5) 30.6 (1081)	18.5 (653) 6.2 (24.9) 414 (14620) 125 (0.5) 30.6 (1081)
<b>Exhaust System</b> Maximum allowable backpressure Exhaust flow at rated power Exhaust temperature at rated power (dry exhaust)	kPa (in Hg) m <sup>3</sup> /min (cfm) °C (°F)	10.7 (3.20) 29.7 (1049) 573 (1064)	27.9 (985) 47.7 (1685) 545 (1013)	10.7 (3.20) 49.2 (1737) 487 (908)	47.7 (1685) 47.7 (1685) 473 (884)
<b>Generator Set Noise Rating*</b> (without attenuation) at 1 m (3.28 ft)	dBA	97.6		N/A	

\*dBA levels are for guidance only

\*\*Fuel consumption data at indicated load with diesel fuel with a specific gravity of 0.85 and conforming to BS2869:1998 Class A2.

Generator Technical Data	50 Hz				60 Hz				
	415/240V	400/230V 230/115V 200/115V	380/220V 220/110V	220/127V	480/277V 240/139V	440/254V 220/127V	208/120V 208/120V	230/115V	380/220V 220/110V
<b>Motor Starting Capability:</b>									
Self Excited (kVA)	414	389	356	457	454	392	355	332	303
AREP Excited*** (kVA)	496	465	426	547	543	469	425	397	363
PM Excited**** (kVA)	496	465	426	547	543	469	425	397	363
<b>Full Load Efficiency</b>									
Standby %	91.5	91.4	91.1	91.8	92.3	92.0	91.5	91.4	90.8
Prime %	92.0	92.7	91.6	92.1	92.6	92.4	92.0	91.8	91.4
<b>Reactances (per unit)</b>									
X <sub>d</sub>	3.07	3.31	3.67	2.49	3.13	3.73	4.15	4.37	4.62
Saturated X' <sub>d</sub>	0.15	0.16	0.18	0.12	0.15	0.18	0.20	0.21	0.23
Reactances are shown									
X <sub>q</sub>	1.84	1.98	2.20	1.49	1.88	2.24	2.49	2.62	2.77
applicable to the standby rating									
X <sub>2</sub>	0.112	0.120	0.133	0.090	0.114	0.136	0.151	0.159	0.168
X <sub>0</sub>	0.101	0.108	0.120	0.081	0.103	0.122	0.136	0.143	0.151
X <sub>0</sub>	0.005	0.006	0.006	0.004	0.005	0.006	0.007	0.007	0.008
<b>Time Constants:</b>	t' <sub>d</sub> 100 ms		t'' 10 ms		t' <sub>do</sub> 2042 ms		t <sub>a</sub> 15 ms		

\*\*\*With AREP Excited Option AR20A/AR21A \*\*\*\*With PMG Excited Option AR18A/AR19A

Consult your Olympian representative for more information

5 0 H z	S T A N D B Y	2 2 0 k V A / 1 7 6 k W
	P R I M E	2 0 0 k V A / 1 6 0 k W
6 0 H z	S T A N D B Y	2 5 0 k V A / 2 0 0 k W
	P R I M E	2 2 5 k V A / 1 8 0 k W

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## RATINGS AT AVAILABLE VOLTAGES

50 Hz					
Voltage Code	Voltage	Standby		Prime	
		kVA	kW	kVA	kW
VOPT502	415/240	220.0	176.0	200.0	160.0
VOPT503	400/230	220.0	176.0	200.0	160.0
VOPT504	380/220	220.0	176.0	200.0	160.0
VOPT506	230/115	220.0	176.0	200.0	160.0
VOPT507	220/127	200.0	160.0	180.0	144.0
VOPT508	220/110	220.0	176.0	200.0	160.0
VOPT510	200/115	220.0	176.0	200.0	160.0

60 Hz					
Voltage Code	Voltage	Standby		Prime	
		kVA	kW	kVA	kW
VOPT601	480/277	250.0	200.0	225.0	180.0
VOPT603	440/254	250.0	200.0	225.0	180.0
VOPT605	380/220	231.0	184.8	210.0	168.0
VOPT606	240/120	249.0	199.2	225.0	180.0
VOPT607	230/115	242.0	193.6	220.0	176.0
VOPT608	220/127	250.0	200.0	225.0	180.0
VOPT609	220/110	231.0	184.8	210.0	168.0
VOPT610	208/120	249.0	199.2	225.0	180.0
VOPT611	240/139	250.0	200.0	225.0	180.0

Ratings at 27° C (80° F), 152.4 m (500 ft), 60% humidity, 0.8 pf

## RATING DEFINITIONS

### STANDBY

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. When used at standby rating the alternator will be peak continuous rated (as defined in ISO8528-3).

### PRIME POWER

These ratings are applicable for supplying continuous 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.

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