

*Exclusively from your Caterpillar® dealer*



## GEP88-1 (3-Phase)

### 50 HZ

**STANDBY**

**88.0 kVA / 70.4 kW**

**PRIME**

**80.0 kVA / 64.0 kW**

### 60 HZ

**STANDBY**

**100 kVA / 80.0 kW**

**PRIME**

**90.0 kVA / 72.0 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, mechanical
- Electrical system, 12 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

- 1001 keystart 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  $\pm 0.5\%$
- 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

|       |         |                    |
|-------|---------|--------------------|
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## OPTIONAL EQUIPMENT\*

|                                    |                                                                                                                                                                                                                                       |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Engine</b>                      | Electronic governor (fully adjustable)<br>Lube oil drain<br>Lube oil drain valve<br>Lube oil temperature shutdown and panel circuitry                                                                                                 |
| <b>Generator</b>                   | Anti-condensation heater<br>Quadrature droop upgrade<br>Permanent magnet generator (PMG)<br>AREP Excitation system                                                                                                                    |
| <b>Cooling System</b>              | Coolant heater<br>Low coolant temperature alarm<br>Low coolant level shutdown<br>Radiator transition flange<br>Coolant drain<br>50% Anti-Freeze (Protection to -36°C)                                                                 |
| <b>Fuel System</b>                 | Manual fuel pump<br>Low fuel level shutdown<br>Low fuel level alarm<br>High fuel level alarm<br>Fuel transfer systems<br>Manual Bypass Valve                                                                                          |
| <b>Silencer System — Open Unit</b> | Level 2 silencer with mounting kit (approximately 25 dB reduction)<br>Level 3 silencer with mounting kit (approximately 35 dB reduction)<br>Overhead mounting kit for level 1 silencer<br>Level 1, 2 and 3 silencer installation kits |
| <b>Enclosures</b>                  | Sound attenuated (EC) canopy                                                                                                                                                                                                          |
| <b>Handling/Trailers</b>           | Oil field skid<br>Single point lift<br>Fixed height chassis trailer<br>Adjustable height chassis trailer                                                                                                                              |
| <b>Controls</b>                    | PowerWizard 1.0 panel<br>PowerWizard 2.0 panel                                                                                                                                                                                        |
| <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<br>ATI Series load transfer panels and bypass switches                                                                                                                                          |
| <b>Certification</b>               | European CE certification (not available on 60 Hz models)                                                                                                                                                                             |

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

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## SPECIFICATIONS



## GENERATOR

|                              |                                                      |
|------------------------------|------------------------------------------------------|
| Make .....                   | Leroy Somer                                          |
| Model .....                  | LL2014L                                              |
| Type .....                   | Self-excited, brushless                              |
| Voltage regulation .....     | ±0.5% at steady state<br>from no load to full load   |
| Frequency .....              | ±0.8% for constant load from<br>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                |

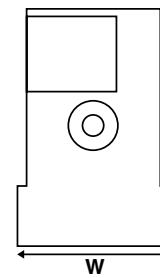
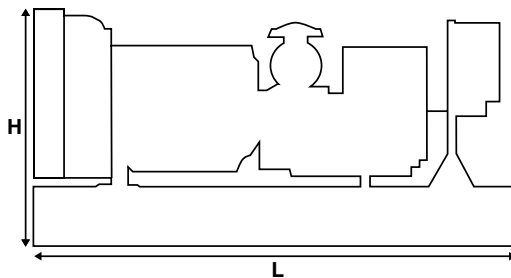


## ENGINE

|                               |                   |
|-------------------------------|-------------------|
| Manufacturer .....            | Perkins           |
| Model .....                   | 1104A-44TG2       |
| Type .....                    | 4-Cycle           |
| Aspiration .....              | Turbocharged      |
| Cylinder configuration .....  | In-line 4         |
| Displacement — L (cu in)..... | 4.4 (269)         |
| Bore/stroke — mm (in).....    | 105/127 (4.1/5.0) |
| Compression ratio .....       | 17.25:1           |
| Engine speed — rpm            |                   |
| 50 Hz .....                   | 1500              |
| 60 Hz .....                   | 1800              |

|                                      |             |
|--------------------------------------|-------------|
| Piston speed — m/sec (ft/sec)        |             |
| 50 Hz .....                          | 6.4 (20.8)  |
| 60 Hz .....                          | 7.6 (25.0)  |
| Maximum power at rated rpm — kW (hp) |             |
| Standby                              |             |
| 50 Hz .....                          | 80.7 (108)  |
| 60 Hz .....                          | 92.6 (124)  |
| Prime                                |             |
| 50 Hz .....                          | 73.4 (98.0) |
| 60 Hz .....                          | 84.2 (113)  |
| BMEP — kPa (psi)                     |             |
| Standby                              |             |
| 50 Hz .....                          | 1468 (213)  |
| 60 Hz .....                          | 1403 (204)  |
| Prime                                |             |
| 50 Hz .....                          | 1335 (194)  |
| 60 Hz .....                          | 1276 (185)  |
| Regenerative power — kW (hp)         |             |
| 50 Hz .....                          | 7.0 (9.4)   |
| 60 Hz .....                          | 9.0 (12.1)  |
| Governor                             |             |
| Type .....                           | Mechanical  |
| Class .....                          | ISO 8528 G2 |

## GENERATING SET DIMENSIONS AND-WEIGHTS



| Model   | Length<br>mm (in) | Width<br>mm (in) | Height<br>mm (in) | Weight*<br>kg (lb) |
|---------|-------------------|------------------|-------------------|--------------------|
| GEP88-1 | 2149 (84.6)       | 752 (29.6)       | 1366 (53.8)       | 1074 (2368)        |

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

\*Includes oil and coolant

Consult your Olympian representative for more information

50 Hz STANDBY 88.0 kVA / 70.4 kW  
PRIME 80.0 kVA / 64.0 kW  
60 Hz STANDBY 100 kVA / 80.0 kW  
PRIME 90.0 kVA / 72.0 kW

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### GEP88-1 (3-Phase)

| Generator Set Technical Data                                                                                                                                                                                                                                                                                          |  | 50 Hz                                    |             | 60 Hz        |             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------|-------------|--------------|-------------|
|                                                                                                                                                                                                                                                                                                                       |  | Standby                                  | Prime       | Standby      | Prime       |
| <b>Package Performance</b><br>Power rating                                                                                                                                                                                                                                                                            |  | kVA (kW)                                 |             |              |             |
|                                                                                                                                                                                                                                                                                                                       |  | 88.0 (70.4)                              | 80.0 (64.0) | 100 (80.0)   | 90.0 (72.0) |
| <b>Lubricating System</b><br>Type: Oil pump & Lubrication sump<br>Oil filter: Spin-on, full flow<br>Oil cooler: Water<br>Oil type required: API CD 15W-40<br>Total lube system capacity<br>Oil pan capacity                                                                                                           |  |                                          |             |              |             |
|                                                                                                                                                                                                                                                                                                                       |  | L (U.S. Gal)                             |             | 8.0 (2.1)    |             |
|                                                                                                                                                                                                                                                                                                                       |  | L (U.S. Gal)                             |             | 7.0 (1.8)    |             |
| <b>Fuel System</b><br>Fuel Tank Capacity<br>Generator set fuel consumption**<br>100% load<br>75% load<br>50% load                                                                                                                                                                                                     |  | L (U.S. Gal)                             |             | 175 (46.2)   |             |
|                                                                                                                                                                                                                                                                                                                       |  | L/hr (U.S. g/hr)                         |             | 23.7 (6.3)   |             |
|                                                                                                                                                                                                                                                                                                                       |  | L/hr (U.S. g/hr)                         |             | 17.9 (4.7)   |             |
|                                                                                                                                                                                                                                                                                                                       |  | L/hr (U.S. g/hr)                         |             | 12.6 (3.3)   |             |
| <b>Engine Electrical System</b><br>Voltage/ground: 12 vDC/negative<br>Battery charging alternator ampere rating                                                                                                                                                                                                       |  | amps                                     |             | 65           |             |
| <b>Cooling System</b><br>Water pump type: Centrifugal<br>Cooling system capacity<br>Maximum coolant static head<br>Coolant flow rate<br>Minimum temperature to engine<br>Temperature rise across engine<br>Heat rejected to coolant at rated power<br>Total heat radiated to room at rated power<br>Radiator fan load |  |                                          |             |              |             |
|                                                                                                                                                                                                                                                                                                                       |  | L (U.S. Gal)                             |             | 13.0 (3.4)   |             |
|                                                                                                                                                                                                                                                                                                                       |  | m H <sub>2</sub> O (ft H <sub>2</sub> O) |             | 10.2 (33.5)  |             |
|                                                                                                                                                                                                                                                                                                                       |  | L/hr (U.S. gal/hr)                       |             | 10200 (2695) |             |
|                                                                                                                                                                                                                                                                                                                       |  | °C (°F)                                  |             | 70.0 (158)   |             |
|                                                                                                                                                                                                                                                                                                                       |  | °C (°F)                                  |             | 4.5 (8.1)    |             |
|                                                                                                                                                                                                                                                                                                                       |  | kW (Btu/min)                             |             | 55.8 (3173)  |             |
|                                                                                                                                                                                                                                                                                                                       |  | kW (Btu/min)                             |             | 22.7 (1291)  |             |
|                                                                                                                                                                                                                                                                                                                       |  | kW (hp)                                  |             | 1.7 (2.3)    |             |
| <b>Air Requirements</b><br>Combustion air flow<br>Maximum air cleaner restriction<br>Radiator cooling air<br>External restriction to cooling airflow<br>Generator cooling air                                                                                                                                         |  |                                          |             |              |             |
|                                                                                                                                                                                                                                                                                                                       |  | m <sup>3</sup> /min (cfm)                |             | 6.4 (226)    |             |
|                                                                                                                                                                                                                                                                                                                       |  | kPa (in H <sub>2</sub> O)                |             | 8.0 (32.1)   |             |
|                                                                                                                                                                                                                                                                                                                       |  | m <sup>3</sup> /min (cfm)                |             | 140 (4958)   |             |
|                                                                                                                                                                                                                                                                                                                       |  | Pa (in H <sub>2</sub> O)                 |             | 120 (0.5)    |             |
|                                                                                                                                                                                                                                                                                                                       |  | m <sup>3</sup> /min (cfm)                |             | 19.2 (678)   |             |
| <b>Exhaust System</b><br>Maximum allowable backpressure<br>Exhaust flow at rated power<br>Exhaust temperature at rated power<br>(dry exhaust)                                                                                                                                                                         |  |                                          |             |              |             |
|                                                                                                                                                                                                                                                                                                                       |  | kPa (in Hg)                              |             | 15.0 (4.4)   |             |
|                                                                                                                                                                                                                                                                                                                       |  | m <sup>3</sup> /min (cfm)                |             | 15.9 (560)   |             |
|                                                                                                                                                                                                                                                                                                                       |  | °C (°F)                                  |             | 560 (1040)   |             |
| <b>Generator Set Noise Rating*</b><br>(without attenuation) at 1 m (3.28 ft)                                                                                                                                                                                                                                          |  | dBA                                      |             | 91.0         |             |

\*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<br>230/115V<br>200/115V | 380/220V<br>220/110V | 220/127V | 480/277V<br>240/139V | 440/254V<br>220/127V | 240/120V<br>208/120V | 230/115V       | 380/220V<br>220/110V |
| <b>Motor Starting Capability:</b>  |          |                                  |                      |          |                      |                      |                      |                |                      |
| Self Excited (kVA)                 | 218      | 206                              | 189                  | 240      | 239                  | 207                  | 188                  | 176            | 161                  |
| AREP Excited*** (kVA)              | 285      | 269                              | 247                  | 313      | 311                  | 270                  | 247                  | 231            | 212                  |
| PM Excited**** (kVA)               | 285      | 269                              | 247                  | 313      | 311                  | 270                  | 247                  | 231            | 212                  |
| <b>Full Load Efficiency</b>        |          |                                  |                      |          |                      |                      |                      |                |                      |
| Standby %                          | 91.1     | 91.1                             | 90.7                 | 91.2     | 91.5                 | 91.3                 | 90.9                 | 90.5           | 90.1                 |
| Prime %                            | 91.4     | 91.4                             | 91.2                 | 91.3     | 91.8                 | 91.6                 | 91.2                 | 91.0           | 90.4                 |
| <b>Reactances (per unit)</b>       |          |                                  |                      |          |                      |                      |                      |                |                      |
| Saturated X <sub>d</sub>           | 2.64     | 2.84                             | 3.15                 | 2.35     | 2.61                 | 3.11                 | 3.48                 | 3.76           | 4.17                 |
| Saturated X' <sub>d</sub>          | 0.09     | 0.10                             | 0.11                 | 0.08     | 0.09                 | 0.10                 | 0.12                 | 0.13           | 0.14                 |
| Reactances X'' <sub>d</sub>        | 0.044    | 0.047                            | 0.052                | 0.039    | 0.043                | 0.052                | 0.058                | 0.063          | 0.069                |
| are shown X <sub>q</sub>           | 1.58     | 1.71                             | 1.89                 | 1.41     | 1.57                 | 1.86                 | 2.09                 | 2.26           | 2.50                 |
| applicable to the X'' <sub>q</sub> | 0.055    | 0.059                            | 0.065                | 0.049    | 0.054                | 0.064                | 0.072                | 0.078          | 0.086                |
| standby rating X <sub>2</sub>      | 0.050    | 0.054                            | 0.060                | 0.045    | 0.050                | 0.059                | 0.066                | 0.071          | 0.079                |
| X <sub>0</sub>                     | 0.005    | 0.005                            | 0.006                | 0.004    | 0.005                | 0.006                | 0.006                | 0.007          | 0.008                |
| <b>Time Constants:</b>             |          |                                  |                      |          |                      |                      |                      |                |                      |
|                                    |          | t' <sub>d</sub>                  |                      | t''      |                      | t' <sub>do</sub>     |                      | t <sub>a</sub> |                      |
|                                    |          | 50 ms                            |                      | 5 ms     |                      | 1480 ms              |                      | 8 ms           |                      |

\*\*\*With AREP Excited Option AR20A/AR21A

\*\*\*\*With PMG Excited Option AR18A/AR19A

|       |         |                    |
|-------|---------|--------------------|
| 50 Hz | STANDBY | 88.0 kVA / 70.4 kW |
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## RATINGS AT AVAILABLE VOLTAGES

| 50 Hz        |         |         |      |       |      |
|--------------|---------|---------|------|-------|------|
| Voltage Code | Voltage | Standby |      | Prime |      |
|              |         | kVA     | kW   | kVA   | kW   |
| VOPT502      | 415/240 | 88.0    | 70.4 | 80.0  | 64.0 |
| VOPT503      | 400/230 | 88.0    | 70.4 | 80.0  | 64.0 |
| VOPT504      | 380/220 | 88.0    | 70.4 | 80.0  | 64.0 |
| VOPT506      | 230/115 | 88.0    | 70.4 | 80.0  | 64.0 |
| VOPT507      | 220/127 | 88.0    | 70.4 | 80.0  | 64.0 |
| VOPT508      | 220/110 | 88.0    | 70.4 | 80.0  | 64.0 |
| VOPT510      | 200/115 | 88.0    | 70.4 | 80.0  | 64.0 |

| 60 Hz        |         |         |      |       |      |
|--------------|---------|---------|------|-------|------|
| Voltage Code | Voltage | Standby |      | Prime |      |
|              |         | kVA     | kW   | kVA   | kW   |
| VOPT601      | 480/277 | 100     | 80.0 | 90.0  | 72.0 |
| VOPT603      | 440/254 | 100     | 80.0 | 90.0  | 72.0 |
| VOPT605      | 380/220 | 97.0    | 77.6 | 88.0  | 70.4 |
| VOPT606      | 240/120 | 100     | 80.0 | 90.0  | 72.0 |
| VOPT607      | 230/115 | 100     | 80.0 | 90.0  | 72.0 |
| VOPT608      | 220/127 | 100     | 80.0 | 90.0  | 72.0 |
| VOPT609      | 220/110 | 97.0    | 77.6 | 88.0  | 70.4 |
| VOPT610      | 208/120 | 100     | 80.0 | 90.0  | 72.0 |
| VOPT611      | 240/139 | 100     | 80.0 | 90.0  | 72.0 |

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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