

# OLYMPIAN™

## GEP22-4

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

| Output Ratings       |                     |                     |
|----------------------|---------------------|---------------------|
| Generating Set Model | Prime*              | Standby*            |
| 380-415V, 50Hz       | 20.0 kVA<br>16.0 kW | 22.0 kVA<br>17.6 kW |
| 220/127V, 60 Hz      | 22.5 kVA<br>18.0 kW | 25.0 kVA<br>20.0 kW |

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

| Technical Data                               |                             |           |
|--|-----------------------------|-----------|
| Engine Make & Model:                         | Perkins 404D-22G            |           |
| Alternator Model:                            | LL1014N                     |           |
| Base Frame Type:                             | Heavy Duty Fabricated Steel |           |
| Circuit Breaker Type:                        | 3 Pole MCB                  |           |
| Frequency:                                   | 50 Hz                       | 60 Hz     |
| Engine Speed: RPM                            | 1500                        | 1800      |
| Fuel Tank Capacity: litres (US gal)          | 45 (11.9)                   |           |
| Fuel Consumption, Prime: l/hr (US gal/hr)    | 5.3 (1.4)                   | 5.8 (1.5) |
| Fuel Consumption, Standby : l/hr (US gal/hr) | 5.9 (1.6)                   | 6.5 (1.7) |

# Engine Technical Data

| Physical Data   |                        |
|---|------------------------|
| Manufacturer:   | Perkins                |
| Model:  | 404D-22G               |
| No. of Cylinders/Alignment:                                 | 4 / In Line            |
| Cycle:  | 4 Stroke               |
| Induction:  | Naturally Aspirated    |
| Cooling Method:   | Water                  |
| Governing Type:   | Mechanical             |
| Governing Class:  | ISO 8528 G2            |
| Compression Ratio:  | 23.3:1                 |
| Displacement: l (cu.in)                                     | 2.2 (135.2)            |
| Bore/Stroke: mm (in)  | 84.0 (3.3)/100.0 (3.9) |
| Moment of Inertia: kg m <sup>2</sup> (lb. in <sup>2</sup> ) | 2.72 (9308)            |
| Engine Electrical System:                                   |                        |
| -Voltage/Ground:  | 12/Negative            |
| -Battery Charger Amps:                                      | 65                     |
| Weight: kg (lb) - Dry:                                      | 242 (534)              |
| - Wet:  | 251 (554)              |

| Air System                                 | 50 Hz               | 60 Hz       |
|--|---------------------|-------------|
| Air Filter Type:                           | Replaceable Element |             |
| Combustion Air Flow:                       |                     |             |
| m <sup>3</sup> /min (cfm)                  | -Standby: 1.5 (51)  | 1.7 (61)    |
|  | -Prime: 1.5 (51)    | 1.7 (61)    |
| Max. Combustion Air Intake                 |                     |             |
| Restriction: kPa (in H <sub>2</sub> O)     | 3.0 (12.0)          | 3.0 (12.0)  |
| Radiator Cooling Air Flow:                 |                     |             |
| m <sup>3</sup> /min (cfm)                  | 33.0 (1165)         | 41.4 (1462) |
| 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)   | 6.5 (1.7)             | 6.5 (1.7)   |
| Water Pump Type:   | Centrifugal           |             |
| Heat Rejected to Water & Lube Oil: kW (Btu/min)  |                       |             |
|  | -Standby: 21.6 (1228) | 24.2 (1376) |
|  | -Prime: 19.6 (1115)   | 22.2 (1262) |
| Heat Radiation to Room:  |                       |             |
| kW (Btu/min)   | -Standby: 4.4 (250)   | 4.6 (262)   |
|  | -Prime: 3.5 (199)     | 3.8 (216)   |
| Radiator Fan Load: kW (hp)   | 0.2 (0.3)             | 0.4 (0.5)   |
| 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): | 10.6 (2.8)         |
| Oil Pan l (US gal):            | 8.9 (2.4)          |
| Oil Type:                      | AP1CH4 15W-40      |
| Cooling Method:                | N/A                |

| Performance                 | 50 Hz         | 60 Hz         |
|-----------------------------|---------------|---------------|
| Engine Speed: RPM           | 1500          | 1800          |
| Gross Engine Power: kW (hp) |               |               |
| -Standby:                   | 20.6 (28.0)   | 24.3 (33.0)   |
| -Prime:                     | 18.7 (25.0)   | 22.0 (30.0)   |
| BMEP: kPa (psi)             |               |               |
| -Standby:                   | 743.0 (107.8) | 731.0 (106.0) |
| -Prime:                     | 675.0 (97.9)  | 662.0 (96.0)  |
| Regenerative Power: kW      | 5.6           | 7.2           |

| 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   | 5.9 (1.6)           | 5.3 (1.4) | 3.9 (1.0) | 2.9 (0.8) |
| 60 Hz   | 6.5 (1.7)           | 5.8 (1.5) | 4.5 (1.2) | 3.3 (0.9) |
| Standby   |                     |           |           |           |
| 50 Hz   | 5.9 (1.6)           | 4.3 (1.1) | 3.0 (0.8) |           |
| 60 Hz   | 6.5 (1.7)           | 4.9 (1.3) | 3.6 (1.0) |           |
| (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         | 263-0765 (1)        |              |
| Pressure Drop Across             |                     |              |
| Silencer System: kPa (in Hg)     | 0.70 (0.207)        | 1.60 (0.472) |
| Silencer Noise Reduction         |                     |              |
| Level: dB                        | 28                  | 21           |
| Max. Allowable Back              |                     |              |
| Pressure: kPa (in. Hg)           | 10.0 (3.0)          | 10.0 (3.0)   |
| Exhaust Gas Flow:                |                     |              |
| m <sup>3</sup> /min (cfm)        | -Standby: 4.5 (159) | 4.8 (168)    |
|                                  | -Prime: 4.1 (145)   | 4.3 (153)    |
| Exhaust Gas Temperature: °C (°F) |                     |              |
| m <sup>3</sup> /min (cfm)        | -Standby: 481 (898) | 510 (950)    |
|                                  | -Prime: 437 (819)   | 440 (824)    |

## Alternator Performance Data

| Data Item                      | 50 Hz    |          |          |     | 60 Hz |     |     |     |          |
|--------------------------------|----------|----------|----------|-----|-------|-----|-----|-----|----------|
|                                | 415/240V | 400/230V | 380/220V |     |       |     |     |     | 220/127V |
| Motor Starting Capability* kVA | 46       | 43       | 39       | -   | -     | -   | -   | -   | 43       |
| Short Circuit Capacity** %     | 300      | 300      | 300      | 300 | 300   | 300 | 300 | 300 | 300      |
| Reactances:<br>Per Unit        |          |          |          |     |       |     |     |     |          |
| Xd                             | 1.740    | 1.880    | 2.080    | -   | -     | -   | -   | -   | 2.090    |
| X'd                            | 0.110    | 0.120    | 0.130    | -   | -     | -   | -   | -   | 0.130    |
| X''d                           | 0.053    | 0.058    | 0.064    | -   | -     | -   | -   | -   | 0.064    |

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:                     | LL1014N  |
| No. of Bearings:           | 1        |
| Insulation Class:          | H        |
| Winding Pitch - Code:      | 2/3 - 6  |
| Wires:                     | 12       |
| Ingress Protection Rating: | IP23     |
| Excitation System:         | SHUNT    |
| AVR Model:                 | R250     |

| 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:                    | Suppression is in line with European Standard EN61000-6 |
| Radiant Heat: kW (Btu/min)             |   |
| -50 Hz:                                | 2.7 (154)   |
| -60 Hz:                                | 2.9 (165)   |

Consult your Olympian representative for more information

## Technical Data

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

| Voltage  | Prime |      | Standby |      |
|----------|-------|------|---------|------|
|          | kVA   | kW   | kVA     | kW   |
| 415/240V | 20.0  | 16.0 | 22.0    | 17.6 |
| 400/230V | 20.0  | 16.0 | 22.0    | 17.6 |
| 380/220V | 20.0  | 16.0 | 22.0    | 17.6 |
|          |       |      |         |      |
|          |       |      |         |      |
|          |       |      |         |      |
|          |       |      |         |      |
|          |       |      |         |      |
|          |       |      |         |      |
|          |       |      |         |      |

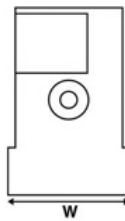
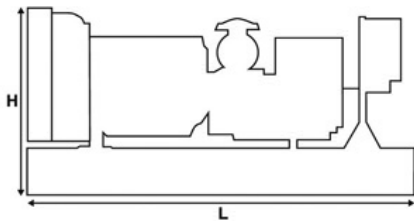
### 3 Phase Ratings and Performance at 60 Hz, 1800 RPM

| Voltage  | Prime |      | Standby |      |
|----------|-------|------|---------|------|
|          | kVA   | kW   | kVA     | kW   |
|          |       |      |         |      |
| 220/127V | 22.5  | 18.0 | 25.0    | 20.0 |
|          |       |      |         |      |
|          |       |      |         |      |
|          |       |      |         |      |
|          |       |      |         |      |
|          |       |      |         |      |
|          |       |      |         |      |
|          |       |      |         |      |
|          |       |      |         |      |

## Weights & Dimensions

| Weights: kg (lb)           |            |
|----------------------------|------------|
| Net (+ lube oil)           | 460 (1014) |
| Wet (+ lube oil & coolant) | 467 (1030) |
| Fuel, lube oil & coolant   | 505 (1113) |

| Dimensions: mm (in) |             |
|---------------------|-------------|
| Length              | 1320 (52.0) |
| Width               | 552 (21.7)  |
| Height              | 1179 (46.4) |



**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.

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Market: International  
LEHF3044-08

04/09

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