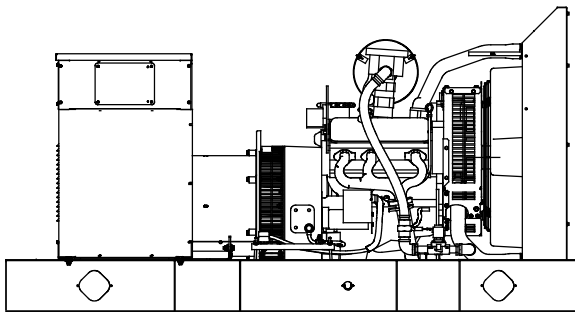




**EPA-Certified for Stationary  
Emergency Applications**

**Ratings Range**

| Standby: | kW<br>kVA | 60 Hz          | 50 Hz          |
|----------|-----------|----------------|----------------|
|          |           | 33-40<br>33-50 | 24-34<br>26-40 |



**Standard Features**

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- A one-year limited warranty covers all generator set systems and components. Two- and five-year extended limited warranties are also available.
- Alternator features:
  - The unique Fast-Response® II excitation system delivers excellent voltage response and short-circuit capability using a permanent magnet (PM)-excited alternator.
  - The brushless, rotating-field alternator has broadrange reconnectability.
- Other features:
  - Kohler designed controllers for guaranteed system integration and remote communication. See Controllers on page 3.
  - The electronic, isochronous governor incorporates an integrated drive-by-wire throttle body actuator delivering precise frequency regulation.

**Generator Set Ratings**

| Alternator | Voltage | Ph | Hz    | Natural Gas<br>130°C Rise<br>Standby Rating |       | LP Gas<br>130°C Rise<br>Standby Rating |      |
|------------|---------|----|-------|---|-------|--|------|
|            |         |    |       | kW/kVA                                      | Amps  | kW/kVA                                 | Amps |
| 4P5        | 120/208 | 3  | 60    | 39/49                                       | 135   | 39/49                                  | 135  |
|            | 127/220 | 3  | 60    | 39/49                                       | 128   | 40/50                                  | 131  |
|            | 120/240 | 3  | 60    | 39/49                                       | 117   | 39/49                                  | 117  |
|            | 120/240 | 1  | 60    | 33/33                                       | 138   | 33/33                                  | 138  |
|            | 139/240 | 3  | 60    | 39/49                                       | 117   | 40/50                                  | 120  |
|            | 220/380 | 3  | 60    | 35/44                                       | 66    | 35/44                                  | 66   |
|            | 277/480 | 3  | 60    | 39/49                                       | 58    | 40/50                                  | 60   |
|            | 347/600 | 3  | 60    | 39/49                                       | 47    | 40/50                                  | 48   |
|            | 110/190 | 3  | 50    | 31/39                                       | 119   | 32/40                                  | 122  |
|            | 115/200 | 3  | 50    | 28/35                                       | 101   | 28/35                                  | 101  |
|            | 120/208 | 3  | 50    | 24/30                                       | 83    | 24/30                                  | 83   |
|            | 110/220 | 3  | 50    | 31/39                                       | 102   | 32/40                                  | 105  |
|            | 110/220 | 1  | 50    | 26/26                                       | 118   | 26/26                                  | 118  |
|            | 220/380 | 3  | 50    | 31/39                                       | 59    | 32/40                                  | 61   |
| 230/400    | 3       | 50 | 28/35 | 51  | 28/35 | 51                                     |      |
| 240/416    | 3       | 50 | 24/30 | 42  | 24/30 | 42                                     |      |
| 4Q5        | 120/240 | 1  | 60    | 38/38                                       | 158   | 38/38                                  | 158  |
|            | 110/220 | 1  | 50    | 30/30                                       | 136   | 32/32                                  | 145  |
| 4Q7        | 120/240 | 1  | 60    | 40/40                                       | 167   | 40/40                                  | 167  |
|            | 110/220 | 1  | 50    | 32/32                                       | 145   | 34/34                                  | 155  |

RATINGS: All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor. Standby Ratings: The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Prime Power Ratings: At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528-1 and ISO-3046-1. For limited running time and continuous ratings, consult the factory. Obtain technical information bulletin (TIB-101) for ratings guidelines, complete ratings definitions, and site condition derates. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. For dual fuel engines, use the natural gas ratings for both the primary and secondary fuels.

# Alternator Specifications

| Specifications                           | Alternator                    |
|--|-------------------------------|
| Manufacturer                             | Kohler                        |
| Type                                     | 4-Pole, Rotating-Field        |
| Exciter type                             | Brushless, Permanent-Magnet   |
| Leads: quantity, type                    |                               |
| 4P5                                      | 12, Reconnectable             |
| 4Q5, 4Q7                                 | 4, 110-120/220-240            |
| Voltage regulator                        | Solid State, Volts/Hz         |
| Insulation:                              | NEMA MG1                      |
| Material                                 | Class H                       |
| Temperature rise                         | 130°C, Standby                |
| Bearing: quantity, type                  | 1, Sealed                     |
| Coupling                                 | Flexible Disc                 |
| Amortisseur windings                     | Full                          |
| Voltage regulation, no-load to full-load | Controller Dependent          |
| One-step load acceptance                 | 100% of Rating                |
| Unbalanced load capability               | 100% of Rated Standby Current |
| Peak motor starting kVA:                 | (35% dip for voltages below)  |
| 480 V, 380 V 4P5 (12 lead)               | 140 (60 Hz), 98 (50 Hz)       |
| 240 V, 220 V 4Q5 (4 lead)                | 95 (60 Hz), 78 (50 Hz)        |
| 240 V, 220 V 4Q7 (4 lead)                | 104 (60 Hz), 91 (50 Hz)       |

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof construction.
- Windings are vacuum-impregnated with epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.
- Fast-Response® II brushless alternator with brushless exciter for excellent load response.

## Application Data

### Engine

| Engine Specifications                      | 60 Hz  | 50 Hz     |
|--|--|-----------|
| Manufacturer                               | General Motors   |           |
| Engine: model, type                        | Industrial Powertrain<br>Vortec 4.3 L, 4-Cycle<br>Natural Aspiration |           |
| Cylinder arrangement                       | V-6  |           |
| Displacement, L (cu. in.)                  | 4.3 (262)  |           |
| Bore and stroke, mm (in.)                  | 101.6 x 88.4 (4.00 x 3.48)   |           |
| Compression ratio                          | 9.05:1   |           |
| Piston speed, m/min. (ft./min.)            | 318 (1044)   | 265 (870) |
| Main bearings: quantity, type              | 4, Babbitt   |           |
| Rated rpm                                  | 1800   | 1500      |
| Max. power at rated rpm, kW (HP)           | 54 (72)  | 45 (60)   |
| Engine power at standby rating, kW (HP)    |  |           |
| Natural Gas                                | 41.9 (56)  | 40.3 (54) |
| LP Gas                                     | 45.3 (61)  | 42.5 (57) |
| Cylinder head material                     | Cast Iron  |           |
| Piston type and material                   | High Silicon Aluminum  |           |
| Crankshaft material                        | Nodular Iron   |           |
| Valve (exhaust) material                   | Forged Steel   |           |
| Governor type                              | Electronic   |           |
| Frequency regulation, no-load to full-load | Isochronous  |           |
| Frequency regulation, steady state         | ±0.5%  |           |
| Frequency                                  | Fixed  |           |
| Air cleaner type, all models               | Dry  |           |

### Exhaust

| Exhaust System  | 60 Hz       | 50 Hz     |
|---|-------------|-----------|
| Exhaust manifold type                                 | Dry         |           |
| Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)  | 8.8 (310)   | 7.4 (260) |
| Exhaust temperature at rated kW, dry exhaust, °C (°F) | 649 (1200)  |           |
| Maximum allowable back pressure, kPa (in. Hg)         | 10.2 (3.0)  |           |
| Exhaust outlet size at engine hookup, mm (in.)        | 76 (3.0) OD |           |

### Engine Electrical

| Engine Electrical System                       | 60 Hz                   | 50 Hz |
|--|-------------------------|-------|
| Ignition system                                | Electronic, Distributor |       |
| Battery charging alternator:                   |                         |       |
| Ground (negative/positive)                     | Negative                |       |
| Volts (DC)                                     | 12                      |       |
| Ampere rating                                  | 70                      |       |
| Starter motor rated voltage (DC)               | 12                      |       |
| Battery, recommended cold cranking amps (CCA): |                         |       |
| Qty., rating for -18°C (0°F)                   | 1, 630                  |       |
| Battery voltage (DC)                           | 12                      |       |

### Fuel

| Fuel System   | 60 Hz                             | 50 Hz |
|---|-----------------------------------|-------|
| Fuel type   | Natural Gas, LP Gas, or Dual Fuel |       |
| Fuel supply line inlet  | 1 NPTF                            |       |
| Natural gas fuel supply pressure, kPa (in. H <sub>2</sub> O)                            | 1.74-2.74 (7-11)                  |       |
| LPG vapor withdrawal fuel supply pressure, kPa (in. H <sub>2</sub> O)                   | 1.24-2.74 (5-11)                  |       |
| Dual fuel engine, LPG vapor withdrawal fuel supply pressure, kPa (in. H <sub>2</sub> O) | 1.24 (5)                          |       |

| Fuel Composition Limits *   | Nat. Gas   | LP Gas      |
|---|------------|-------------|
| Methane, % by volume  | 90 min.    | —           |
| Ethane, % by volume   | 4.0 max.   | —           |
| Propane, % by volume  | 1.0 max.   | 85 min.     |
| Propene, % by volume  | 0.1 max.   | 5.0 max.    |
| C <sub>4</sub> and higher, % by volume                              | 0.3 max.   | 2.5 max.    |
| Sulfur, ppm mass  | 25 max.    |             |
| Lower heating value, MJ/m <sup>3</sup> (Btu/ft <sup>3</sup> ), min. | 33.2 (890) | 84.2 (2260) |

\* Fuels with other compositions may be acceptable. If your fuel is outside the listed specifications, contact your local distributor for further analysis and advice.

# Application Data

## Lubrication

| Lubricating System                    | 60 Hz         | 50 Hz |
|---------------------------------------|---------------|-------|
| Type                                  | Full Pressure |       |
| Oil pan capacity, L (qt.)             | 4.3 (4.5)     |       |
| Oil pan capacity with filter, L (qt.) | 5.7 (6.0)     |       |
| Oil filter: quantity, type            | 1, Cartridge  |       |

## Cooling

| Radiator System  | 60 Hz       | 50 Hz       |
|--|-------------|-------------|
| Ambient temperature, °C (°F) *   | 50 (122)    |             |
| Engine jacket water capacity, L (gal.)   | 6.8 (1.8)   |             |
| Radiator system capacity, including engine, L (gal.)   | 19.7 (5.2)  |             |
| Engine jacket water flow, Lpm (gpm)  | 106.0 (28)  | 87.1 (23)   |
| Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)                             | 39.2 (2230) | 34.6 (1970) |
| Water pump type  | Centrifugal |             |
| Fan diameter, including blades, mm (in.)   | 533 (21)    |             |
| Fan, kWm (HP)  | 1.5 (2.0)   | 1.0 (1.2)   |
| Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O) | 0.125 (0.5) |             |

\* Enclosure with enclosed silencer reduces ambient temperature capability by 5°C (9°F).

## Operation Requirements

| Air Requirements   | 60 Hz      | 50 Hz      |
|--|------------|------------|
| Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm) † | 142 (5000) | 113 (4000) |
| Combustion air, m <sup>3</sup> /min. (cfm)                 | 2.61 (92)  | 2.20 (78)  |
| Heat rejected to ambient air:                              |            |            |
| Engine, kW (Btu/min.)                                      | 16.0 (910) | 15.4 (860) |
| Alternator, kW (Btu/min.)                                  | 6.3 (360)  | 6.2 (350)  |

† Air density = 1.20 kg/m<sup>3</sup> (0.075 lbm/ft<sup>3</sup>)

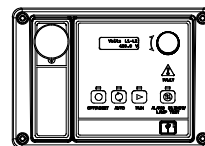
| Fuel Consumption ‡                                    | 60 Hz                  | 50 Hz      |
|---|------------------------|------------|
| <b>Natural Gas, m<sup>3</sup>/hr. (cfh) at % load</b> | <b>Standby Ratings</b> |            |
| 100%  | 16.5 (584)             | 13.5 (477) |
| 75%   | 13.8 (486)             | 10.4 (367) |
| 50%   | 10.2 (360)             | 8.0 (281)  |
| 25%   | 7.7 (272)              | 5.8 (206)  |
| <b>LP Gas, m<sup>3</sup>/hr. (cfh) at % load</b>      | <b>Standby Ratings</b> |            |
| 100%  | 6.9 (242)              | 5.4 (190)  |
| 75%   | 5.4 (191)              | 4.2 (148)  |
| 50%   | 4.0 (141)              | 3.1 (111)  |
| 25%   | 2.9 (101)              | 2.3 (81)   |

‡ Nominal fuel rating: Natural gas, 37 MJ/m<sup>3</sup> (1000 Btu/ft.<sup>3</sup>)  
LP vapor, 93 MJ/m<sup>3</sup> (2500 Btu/ft.<sup>3</sup>)

LP vapor conversion factors:

8.58 ft.<sup>3</sup> = 1 lb.  
0.535 m<sup>3</sup> = 1 kg.  
36.39 ft.<sup>3</sup> = 1 gal.

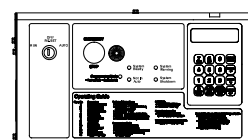
## Controllers



### Decision-Maker® 3000 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- Digital display and menu control provide easy local data access
  - Measurements are selectable in metric or English units
  - Remote communication thru a PC via network or serial configuration
  - Controller supports Modbus® protocol
  - Integrated hybrid voltage regulator with ±0.5% regulation
  - Built-in alternator thermal overload protection
  - NFPA 110 Level 1 capability
- Refer to G6-100 for additional controller features and accessories.



### Decision-Maker® 550 Controller

Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities.

- Digital display and keypad provide easy local data access
  - Measurements are selectable in metric or English units
  - Remote communication thru a PC via network or modem configuration
  - Controller supports Modbus® protocol
  - Integrated voltage regulator with ±0.25% regulation
  - Built-in alternator thermal overload protection
  - NFPA 110 Level 1 capability
- Refer to G6-46 for additional controller features and accessories.

Modbus® is a registered trademark of Schneider Electric.

## Standard Features

- Alternator Protection
- Battery Rack and Cables
- Electronic, Isochronous Governor
- Gas Fuel System (includes fuel mixer, electronic secondary gas regulator, gas solenoid valve, and flexible fuel line between the engine and the skid-mounted fuel system components)
- Integral Vibration Isolation
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature

## Available Options

### Approvals and Listings

- CSA Approval
- IBC Seismic Certification
- UL 2200 Listing

### Enclosed Unit

- Sound Enclosure (with enclosed critical silencer)
- Weather Enclosure (with enclosed critical silencer)

### Open Unit

- Exhaust Silencer, Critical (kit: PA-352663)
- Flexible Exhaust Connector, Stainless Steel

### Fuel System

- Dual Fuel NG/LPG (automatic changeover)
- Flexible Fuel Line (required when the generator set skid is spring mounted)
- Gas Filter
- LP Liquid Withdrawal (vaporizer)
- Secondary Gas Solenoid Valve

### Controller

- Common Fault Relay
- Communication Products and PC Software (Decision-Maker® 550 controller only)
- Customer Connection (Decision-Maker® 550 controller only)
- Dry Contact (isolated alarm) (Decision-Maker® 550 controller only)
- Input/Output Module (Decision-Maker® 3000 controller only)
- Remote Annunciator Panel
- Remote Audiovisual Alarm Panel (Decision-Maker® 550 controller only)
- Remote Emergency Stop
- Run Relay

### Cooling System

- Block Heater, 1000 W, 110–120 V Recommended for ambient temperatures below 10°C (50°F)
- Radiator Duct Flange

### Electrical System

- Alternator Strip Heater
- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater
- Line Circuit Breaker (NEMA1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)

### Miscellaneous

- Air Cleaner Restrictor Indicator
- Certified Test Report
- Engine Fluids (oil and coolant) Added
- Rated Power Factor Testing
- Rodent Guards

### Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

### Warranty

- 2-Year Basic Limited
- 5-Year Basic Limited
- 5-Year Comprehensive Limited

### Other Options

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
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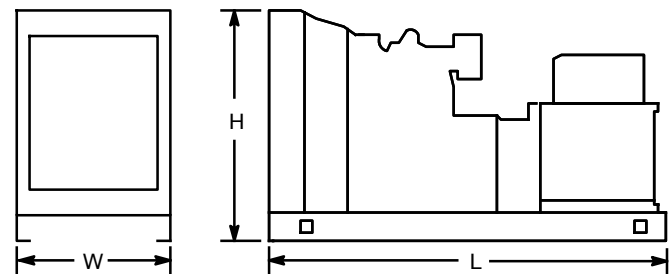
## Dimensions and Weights

Overall Size, L x W x H, mm (in.):

Wide Skid 2200 x 1040 x 1172 (86.6 x 40.9 x 46.1)

Narrow Skid 2200 x 864 x 1172 (86.6 x 34.0 x 46.1)

Weight (radiator model), wet, kg (lb.): 556 (1225)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

### DISTRIBUTED BY: