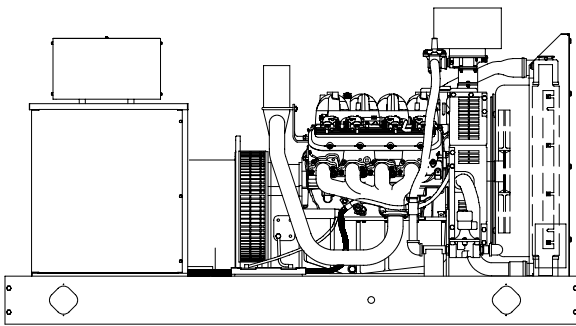




**Ratings Range**

		60 Hz	50 Hz
Standby:	kW	80-100	69-88
	kVA	80-125	69-110
Prime:	kW	71-94	62-80
	kVA	71-118	62-100



**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.
- A one-year limited warranty covers all systems and components. Two-, five-, and ten-year extended warranties are also available.
- Alternator features:
  - The Fast-Response™ III wound field (WF) design alternator provides excellent voltage response and short-circuit capability using an auxiliary power brushless exciter.
  - 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:
  - Controllers are available for all applications. See controller features inside.
  - 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				LP Gas			
				130°C Rise Standby Rating		105°C Rise Prime Rating		130°C Rise Standby Rating		105°C Rise Prime Rating	
				kW/kVA	Amps	kW/kVA	Amps	kW/kVA	Amps	kW/kVA	Amps
4S9W/ 4S9	120/208	3	60	90/113	312	81/101	280	100/125	347	91/114	316
	127/220	3	60	90/113	295	81/101	265	100/125	328	91/114	299
	120/240	3	60	90/113	271	81/101	243	100/125	301	91/114	274
	120/240	1	60	80/80	333	71/71	296	80/80	333	71/71	296
	139/240	3	60	90/113	271	81/101	243	100/125	301	91/114	274
	220/380	3	60	88/110	167	81/101	153	88/110	167	82/103	156
	277/480	3	60	90/113	135	81/101	121	100/125	150	91/114	137
	347/600	3	60	90/113	108	81/101	97	100/125	120	91/114	109
	110/190	3	50	76/95	289	69/86	261	80/100	304	73/91	277
	115/200	3	50	76/95	274	69/86	248	80/100	289	73/91	263
	120/208	3	50	76/95	264	69/86	239	80/100	278	73/91	253
	110/220	3	50	76/95	249	69/86	226	80/100	262	73/91	239
	110/220	1	50	69/69	314	62/62	282	70/70	318	63/63	286
	220/380	3	50	76/95	144	69/86	131	80/100	152	73/91	138
	230/400	3	50	76/95	137	69/86	124	80/100	144	73/91	131
	240/416	3	50	76/95	132	69/86	119	80/100	139	73/91	126
4S13W/ 4S13	120/208	3	60	100/125	347	91/114	316	100/125	347	91/114	316
	127/220	3	60	100/125	328	91/114	299	100/125	328	91/114	299
	120/240	3	60	100/125	301	91/114	274	100/125	301	91/114	274
	120/240	1	60	90/90	375	82/82	342	94/94	392	85/85	354
	139/240	3	60	100/125	301	91/114	274	100/125	301	91/114	274
	220/380	3	60	100/125	190	91/114	173	100/125	190	91/114	173
	277/480	3	60	100/125	150	91/114	137	100/125	150	91/114	137
	347/600	3	60	100/125	120	91/114	109	100/125	120	91/114	109
	110/190	3	50	80/100	304	73/91	277	88/110	334	80/100	304
	115/200	3	50	80/100	289	73/91	263	88/110	318	80/100	289
	120/208	3	50	80/100	278	73/91	253	88/110	305	80/100	278
	110/220	3	50	80/100	262	73/91	239	88/110	289	80/100	262
	110/220	1	50	72/72	327	65/65	295	81/81	368	74/74	336
	220/380	3	50	80/100	152	73/91	138	88/110	167	80/100	152
	230/400	3	50	80/100	144	73/91	131	88/110	159	80/100	144
	240/416	3	50	80/100	139	73/91	126	88/110	153	80/100	139
4V11W/ 4V11	120/240	1	60	86/86	358	77/77	321	95/95	396	85/85	354
	110/220	1	50	72/72	327	65/65	295	78/78	355	70/70	318

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:* Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Ratings are in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. *Prime Power Ratings:* Prime power ratings apply to installations where utility power is unavailable or unreliable. 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, overload power in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. For limited running time and base load ratings, consult the factory. Obtain the technical information bulletin (TIB-101) on ratings guidelines for the complete ratings definitions. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. *GENERAL GUIDELINES FOR DERATION: Altitude:* Derate 1.3% per 100 m (328 ft.) elevation above 200 m (656 ft.). *Temperature:* Derate 3.0% per 10°C (18°F) temperature above 25°C (77°F). For units having enclosures with enclosed silencers, add 10°C (18°F) to the ambient temperature. Dual fuel engines are optimized to run on the primary fuel (natural gas) and, as a result, the LPG ratings may not be attained. 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	
Wound field (WF)	Wound Exciter Field with Separate Excitation Power Winding
Permanent magnet (PM)	Brushless, Permanent-Magnet
Leads: quantity, type	
4S9W/4S9, 4S13W/4S13	12, Reconnectable
4V11W/4V11	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	
Wound field (WF) alternator	±0.25% Average
Permanent magnet (PM) alternator	±2% Average
550 controller (with 0.5% drift due to temperature variation)	3-Phase Sensing, ±0.25%
Unbalanced load capability	100% of Rated Standby Current
One-step load acceptance	100% of Rating

- 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 drip-proof construction.
- Vacuum-impregnated windings with fungus-resistant epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.
- Fast-Response™ III wound field (WF) brushless alternator with auxiliary power brushless exciter for excellent load response.
- Fast-Response™ II brushless alternator with brushless exciter for excellent load response.

Specifications	Alternator
Peak motor starting kVA:	(35% dip for voltages below)
480 V, 380 V 4S9W/4S9 (12 lead)	315 (60Hz), 250 (50Hz)
480 V, 380 V 4S13W/4S13 (12 lead)	510 (60Hz), 370 (50Hz)
240 V, 220 V 4V11W/4V11 (4 lead)	350 (60Hz), 285 (50Hz)

## Application Data

### Engine

Engine Specifications	60 Hz	50 Hz
Manufacturer	General Motors	
Engine: model, type	Industrial Powertrain Vortec 8.1 L, 4-Cycle Natural Aspiration	
Cylinder arrangement	V-8	
Displacement, L (cu. in.)	8.1 (496)	
Bore and stroke, mm (in.)	108 x 111 (4.25 x 4.37)	
Compression ratio	9.1:1	
Piston speed, m/min. (ft./min.)	399 (1311)	332 (1092)
Main bearings: quantity, type	Alum. Lead Silicon Alloy	
Rated rpm	1800	1500
Max. power at rated rpm, kW (HP)	121 (162)	99 (133)
Cylinder head material	Cast Iron	
Piston type and material	Strutless Flat Top, Hypereutectic Cast Alum.	
Crankshaft material	Cast Nodular Undercut Rolled Fillet	
Valve (exhaust) material	Int.-A193 Exh. Inconel	
Governor type	Electronic	
Frequency regulation, no-load to full-load	Isochronous	
Frequency regulation, steady state	±0.5%	
Frequency	Field-Convertible	
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)	20.8 (735)	15.3 (540)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	677 (1250)	
Maximum allowable back pressure, kPa (in. Hg)	10.2 (3.0)	
Exhaust outlet size at engine hookup, mm (in.)	89 (3.5)	

### Engine Electrical

Engine Electrical System	60 Hz	50 Hz
Ignition system	Individual Coil Near Plug Ignition	
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)	One, 630	
Battery voltage (DC)	12	

### Fuel

Fuel System	60 Hz	50 Hz
Fuel type	LP Gas or Natural Gas	
Fuel supply line inlet	1 NPTF	
Natural gas/LPG fuel supply pressure, measured at the generator set fuel inlet downstream of any fuel system equipment accessories, kPa (in. H <sub>2</sub> O)	1.74-2.74 (7.0-11.0)	

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, kJ/m <sup>3</sup> (Btu/ft <sup>3</sup> ), min.	26.6 (890)	67.5 (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.)	7.6 (8.0)	
Oil pan capacity with filter, L (qt.)	8.0 (8.5)	
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.)	10.0 (2.6)	
Radiator system capacity, including engine, L (gal.)	25.7 (6.8)	
Engine jacket water flow, Lpm (gpm)	125 (33)	102 (27)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	73 (4140)	60 (3430)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	599 (23.6)	
Fan, kWm (HP)	6.7 (9.0)	3.7 (5.0)
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 10°C (18°F). Enclosure with roof-mounted silencer reduces ambient temperature capability by 5°C (9°F).

Remote Radiator System†	60 Hz	50 Hz
Exhaust manifold type	Dry	
Connection sizes:		
Water inlet, ID hose, mm (in.)	44.45 (1.75)	
Water outlet, ID hose, mm (in.)	38.10 (1.50)	
Static head allowable above engine, kPa (ft. H <sub>2</sub> O)	4.32 (17.0)	

† Contact your local distributor for cooling system options and specifications based on your specific requirements.

## Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm)‡	198 (7000)	153 (5400)
Cooling air required for generator set when equipped with city water cooling or remote radiator, based on 14°C (25°F) rise and ambient temperature of 29°C (85°F), m <sup>3</sup> /min. (cfm)	220 (7750)	175 (6170)
Combustion air, m <sup>3</sup> /min. (cfm)	7.1 (250)	5.1 (180)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	47.6 (2710)	36.9 (2100)
Alternator, kW (Btu/min.)	13.7 (780)	12.0 (680)

‡ 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 Rating</b>	
100%	33.0(1164)	28.3(1001)
75%	25.3 (893)	21.9 (773)
50%	21.1 (745)	15.6 (552)
25%	13.2 (466)	10.2 (359)
0%	7.3 (257)	5.6 (198)
<b>Natural Gas, m<sup>3</sup>/hr. (cfh) at % load</b>	<b>Prime Rating</b>	
100%	30.2(1065)	26.0 (918)
75%	24.1 (852)	20.2 (713)
50%	19.7 (694)	14.6 (517)
25%	12.6 (447)	9.8 (344)
0%	7.3 (257)	5.6 (198)

LP Gas, m <sup>3</sup> /hr. (cfh) at % load	Standby Rating	
100%	14.5 (511)	11.2 (396)
75%	11.4 (403)	8.6 (302)
50%	8.7 (306)	6.4 (227)
25%	5.5 (195)	4.5 (158)
0%	2.9 (104)	2.2 (79)

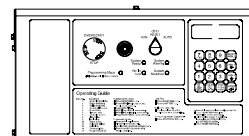
LP Gas, m <sup>3</sup> /hr. (cfh) at % load	Prime Rating	
100%	13.4 (472)	10.3 (362)
75%	10.7 (377)	8.0 (282)
50%	8.1 (285)	6.1 (215)
25%	5.3 (187)	4.3 (151)
0%	2.9 (104)	2.2 (79)

§ Fuel consumption is based on 1015 Btu/standard cu. ft. natural gas.

LP vapor conversion factors:

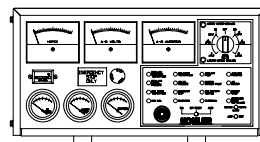
8.58 ft.<sup>3</sup> = 1 lb.  
0.535 m<sup>3</sup> = 1 kg.  
36.39 ft.<sup>3</sup> = 1 gal.

## Controllers



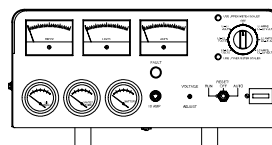
### Decision-Maker™ 550 Controller

Audiovisual annunciation with NFPA 110 Level 1 capability. Programmable microprocessor logic and digital display features. Alternator safeguard circuit protection. 12- or 24-volt engine electrical system capability. Remote start, remote annunciation, and remote communication options. Refer to G6-46 for additional controller features and accessories.



### Decision-Maker™ 3+, 16-Light Controller

Audiovisual annunciation with NFPA 110 Level 1 capability. Microprocessor logic, AC meters, and engine gauge features. 12- or 24-volt engine electrical system capability. Remote start, prime power, and remote annunciation options. Refer to G6-30 for additional controller features and accessories.



### Decision-Maker™ 1 Controller

Single-light annunciation and basic controls with NFPA capability. Relay logic, AC meters, and engine gauge features. 12-volt engine electrical system capability only. Remote or automatic start options. Refer to G6-29 for additional controller features and accessories. **Note:** Not available with 600-volt alternator.

## Additional Standard Features

- Alternator Protection (standard with 550 controller)
- Battery Rack and Cables
- Electronic, Isochronous Governor
- Gas Fuel System (includes fuel mixer, secondary gas regulator, gas solenoid valve, and flexible fuel line between the engine and the skid-mounted fuel system components)
- Integral Vibration Isolation
- Oil Drain Extension
- Operation and Installation Literature

## Available Accessories

### Enclosed Unit

- Sound Enclosure (with enclosed critical silencer)
- Weather Enclosure (with enclosed critical silencer)
- Weather Housing (with roof-mounted silencer)

### Open Unit

- Exhaust Silencer, Critical (kits: PA-324292, PA-324470)
- Flexible Exhaust Connector, Stainless Steel

### Cooling System

- Block Heater  
[recommended for ambient temperatures below 10°C (50°F)]
- City Water Cooling
- Radiator Duct Flange
- Remote Radiator Cooling

### Fuel System

- Automatic Changeover (natural gas to LP gas)
- Flexible Fuel Line  
(required when the generator set skid is spring mounted)
- Gas Filter
- LP Gas Liquid Withdrawal
- Manual Valve
- Secondary Gas Solenoid Valve

### Electrical System

- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater

### Engine and Alternator

- Alternator, Wound Field (WF)
- Alternator, Permanent Magnet (PM)
- Air Cleaner Restrictor Indicator
- Alternator Strip Heater
- CSA Certification
- Engine Fluids (oil and coolant) Added
- Line Circuit Breaker (NEMA1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)
- Optional Alternators
- Rated Power Factor Testing
- Rodent Guards
- Safeguard Breaker (not available with 550 controller)
- Voltage Regulation, 1%
- Voltage Regulator Sensing, 3-Phase

## Literature and Maintenance

- General Maintenance Literature Kit
- Maintenance Kit (includes standard air, oil, and fuel filters)
- NFPA 110 Literature
- Overhaul Literature Kit
- Production Literature Kit

## Controller (550 and 16-Light)

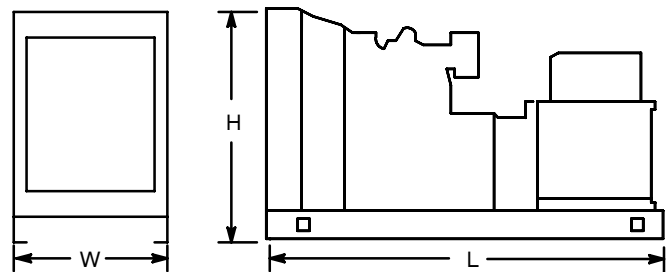
- Common Failure Relay Kit
- Communication Products and PC Software (550 controller only)
- Customer Connection Kit
- Dry Contact Kit (isolated alarm)
- Engine Prealarm Sender Kit
- Local Emergency Stop Kit
- Prime Power Switch (550 controller only)
- Remote Annunciator Panel
- Remote Audiovisual Alarm Panel
- Remote Emergency Stop Kit
- Remote Mounting Cable
- Run Relay Kit

## Miscellaneous Accessories

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

## Dimensions and Weights

Overall Size, L x W x H, mm (in.):  
 Wide Skid 2400 x 1040 x 1484 (94.5 x 40.9 x 58.4)  
 Narrow Skid 2400 x 865 x 1484 (94.5 x 34.1 x 58.4)  
 Weight (radiator model), wet, kg (lb.): 1134 (2500)



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

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