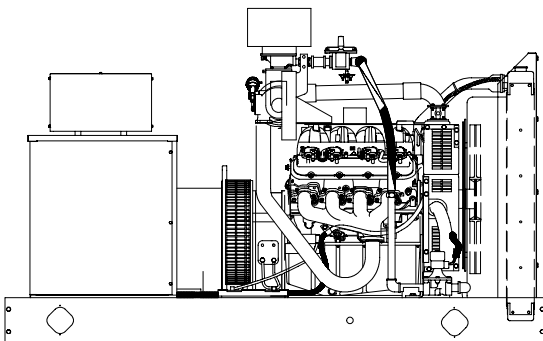




**Ratings Range**

		60 Hz	50 Hz
Standby:	kW	95-130	84-104
	kVA	95-163	84-130
Prime:	kW	90-115	77-96
	kVA	90-144	77-120



**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
4S11W/ 4S11	120/208	3	60	125/156	434	115/144	399	105/131	364	96/120	333
	127/220	3	60	125/156	410	115/144	377	105/131	344	96/120	315
	120/240	3	60	125/156	376	115/144	346	105/131	316	96/120	289
	120/240	1	60	95/95	396	90/90	375	95/95	396	86/86	358
	139/240	3	60	125/156	376	115/144	346	105/131	316	96/120	289
	220/380	3	60	120/150	228	110/138	209	105/131	199	96/120	182
	277/480	3	60	125/156	188	115/144	173	105/131	158	96/120	144
	347/600	3	60	125/156	150	115/144	138	105/131	126	96/120	115
	110/190	3	50	104/130	395	96/120	365	96/120	365	88/110	334
	115/200	3	50	104/130	375	96/120	346	96/120	346	88/110	318
	120/208	3	50	104/130	361	96/120	333	96/120	333	88/110	305
	110/220	3	50	104/130	341	96/120	315	96/120	315	88/110	289
	110/220	1	50	84/84	382	77/77	350	84/84	382	77/77	350
	220/380	3	50	104/130	198	96/120	182	96/120	182	88/110	167
	230/400	3	50	104/130	188	96/120	173	96/120	173	88/110	159
	240/416	3	50	104/130	180	96/120	167	96/120	167	88/110	153
4S13W/ 4S13	120/208	3	60	130/163	451	115/144	399	110/138	382	100/125	347
	127/220	3	60	130/163	426	115/144	377	110/138	361	100/125	328
	120/240	3	60	130/163	391	115/144	346	110/138	331	100/125	301
	120/240	1	60	100/100	417	91/91	379	100/100	417	91/91	379
	139/240	3	60	130/163	391	115/144	346	110/138	331	100/125	301
	220/380	3	60	125/156	237	115/144	218	110/138	209	100/125	190
	277/480	3	60	130/163	195	115/144	173	110/138	165	100/125	150
	347/600	3	60	130/163	156	115/144	138	110/138	132	100/125	120
	110/190	3	50	104/130	395	96/120	365	96/120	365	88/110	334
	115/200	3	50	104/130	375	96/120	346	96/120	346	88/110	318
	120/208	3	50	104/130	361	96/120	333	96/120	333	88/110	305
	110/220	3	50	104/130	341	96/120	315	96/120	315	88/110	289
	110/220	1	50	90/90	409	80/80	364	90/90	409	80/80	364
	220/380	3	50	104/130	198	96/120	182	96/120	182	88/110	167
	230/400	3	50	104/130	188	96/120	173	96/120	173	88/110	159
	240/416	3	50	104/130	180	96/120	167	96/120	167	88/110	153
4V11W/ 4V11	120/240	1	60	110/110	458	105/105	438	100/100	417	91/91	379
	110/220	1	50	96/96	436	87/87	395	88/88	400	80/80	364

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 0.5% per 100 m (328 ft.) elevation above 1500 m (4921 ft.) up to a maximum elevation of 3000 m (9842 ft.). *Temperature:* Derate 2.0% per 10°C (18°F) temperature above 25°C (77°F) up to 50°C (122°F).

# 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	
4S11W/4S11, 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 4S11W/4S11 (12 lead)	460 (60Hz), 350 (50Hz)
480 V, 380 V 4S13W/4S13 (12 lead)	515 (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, Turbocharged	
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)	146 (195)	118 (158)
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)	26.1 (920)	18.7 (660)
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.)	71 (2.8)	

### 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	1.5 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.)	8.0 (8.5)	
Oil pan capacity with filter, L (qt.)	8.5 (9.0)	
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.)	10.0 (2.6)	
Radiator system capacity, including engine, L (gal.)	24.2 (6.4)	
Engine jacket water flow, Lpm (gpm)	125 (33)	102 (27)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	110 (6260)	72 (4100)
Heat rejected to engine oil at rated kW, kW (Btu/min.)	1.4 (81)	1.2 (68)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	599 (23.6)	
Fan, kWm (HP)	10.4 (14.0)	6.0 (8.1)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O)	0.125 (0.5)	

\* Weather housing with roof-mounted silencer and enclosure with enclosed silencer reduce ambient temperature capability by 10°C (18°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)‡	306 (10800)	232 (8200)
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)	307 (10840)	193 (6820)
Combustion air, m <sup>3</sup> /min. (cfm)	8.8 (312)	6.2 (220)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	72.0 (4100)	44.1 (2510)
Alternator, kW (Btu/min.)	13.7 (780)	9.8 (560)

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

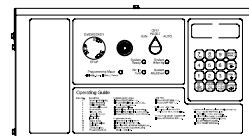
Fuel Consumption§	60 Hz	50 Hz
<b>Natural Gas, m<sup>3</sup>/hr. (cfh) at % load</b>	<b>Standby Rating</b>	
100%	46.8(1651)	39.6(1400)
75%	38.9(1372)	31.3(1105)
50%	27.9 (984)	22.8 (806)
25%	18.4 (650)	15.1 (535)
0%	10.4 (369)	8.8 (310)
<b>Natural Gas, m<sup>3</sup>/hr. (cfh) at % load</b>	<b>Prime Rating</b>	
100%	43.9(1549)	36.6(1293)
75%	35.8(1266)	29.0(1023)
50%	26.1 (923)	21.4 (757)
25%	17.7 (624)	14.6 (515)
0%	10.4 (369)	8.8 (310)
<b>LP Gas, m<sup>3</sup>/hr. (cfh) at % load</b>	<b>Standby Rating</b>	
100%	16.5 (582)	14.4 (509)
75%	13.3 (469)	11.8 (416)
50%	10.0 (354)	8.4 (298)
25%	6.4 (226)	5.8 (205)
0%	3.7 (130)	3.1 (108)
<b>LP Gas, m<sup>3</sup>/hr. (cfh) at % load</b>	<b>Prime Rating</b>	
100%	15.3 (541)	13.5 (475)
75%	12.4 (438)	10.9 (384)
50%	9.4 (331)	8.0 (281)
25%	6.1 (217)	5.6 (196)
0%	3.7 (130)	3.1 (108)

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

LP vapor conversion factors:

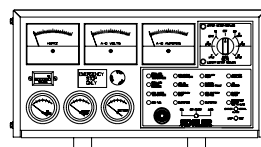
8.58 ft.<sup>3</sup> = 1 lb.  
0.535 m<sup>3</sup> = 1 kg.  
36.39 ft.<sup>3</sup> = 1 gal.

## 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.

## 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
- Low Fuel Pressure Shutdown
- 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

- 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)

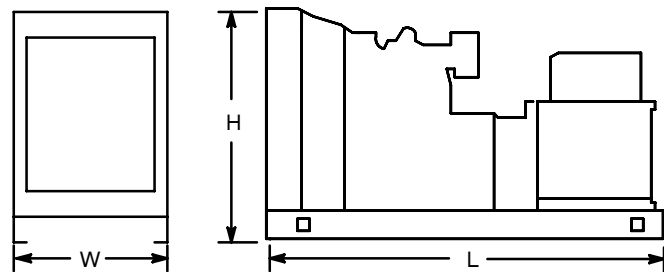
- Common Failure Relay Kit
- Communication Products and PC Software (550 controller only)
- Customer Connection Kit
- Dry Contact Kit (isolated alarm)
- Engine Prealarm Sender Kit
- Local Emergency Stop Kit
- Prime Power Switch (550 controller only)
- Remote Annunciator Panel
- Remote Audiovisual Alarm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