

Model: **100REZG**

KOHLER POWER SYSTEMS

190-600 V

Gas



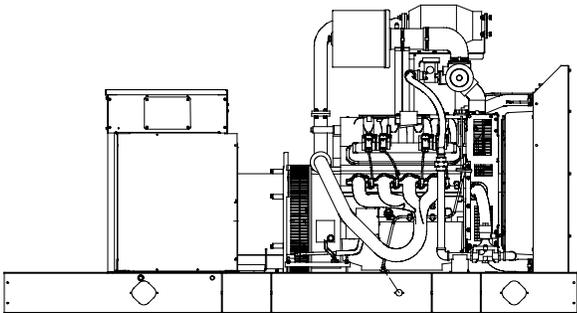
**EPA-Certified for Stationary
Emergency Applications**

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 systems and components. Two- and five-year extended 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.

Ratings Range

Standby:	kW kVA	60 Hz	50 Hz
		80-100 80-125	69-84 69-105



Generator Set Ratings

Alternator	Voltage	Ph	Hz	Natural Gas 130° C Rise Standby Rating		LP Gas 130° C Rise Standby Rating	
				kW/kVA	Amps	kW/kVA	Amps
4S9	120/208	3	60	90/113	312	95/119	330
	127/220	3	60	90/113	295	95/119	312
	120/240	3	60	90/113	271	95/119	286
	120/240	1	60	80/80	333	80/80	333
	139/240	3	60	90/113	271	95/119	286
	220/380	3	60	88/110	167	88/110	167
	277/480	3	60	90/113	135	95/119	143
	347/600	3	60	90/113	108	95/119	114
	110/190	3	50	74/92	280	78/98	298
	115/200	3	50	74/92	266	78/98	283
	120/208	3	50	74/92	255	78/98	272
	110/220	3	50	74/92	241	78/98	257
	110/220	1	50	69/69	314	70/70	318
	220/380	3	50	74/92	140	78/98	149
	230/400	3	50	74/92	133	78/98	141
	240/416	3	50	74/92	128	78/98	136
4S13	120/208	3	60	100/125	347	100/125	347
	127/220	3	60	100/125	328	100/125	328
	120/240	3	60	100/125	301	100/125	301
	120/240	1	60	90/90	375	94/94	392
	139/240	3	60	100/125	301	100/125	301
	220/380	3	60	100/125	190	100/125	190
	277/480	3	60	100/125	150	100/125	150
	347/600	3	60	100/125	120	100/125	120
	110/190	3	50	80/100	304	84/105	319
	115/200	3	50	80/100	289	84/105	303
	120/208	3	50	80/100	278	84/105	291
	110/220	3	50	80/100	262	84/105	276
	110/220	1	50	72/72	327	80/80	364
	220/380	3	50	80/100	152	84/105	160
	230/400	3	50	80/100	144	84/105	152
	240/416	3	50	80/100	139	84/105	146
4V11	120/240	1	60	86/86	358	95/95	396
	110/220	1	50	70/70	318	76/76	345

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	
4S9, 4S13	12, Reconnectable
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	Controller Dependent
Decision-Maker® 550 and 6000 controller (with 0.5% drift due to temperature variation)	3-Phase Sensing, ±0.25%
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 4S9 (12 lead)	315 (60 Hz), 250 (50 Hz)
480 V, 380 V 4S13 (12 lead)	515 (60 Hz), 370 (50 Hz)
240 V, 220 V 4V11 (4 lead)	350 (60 Hz), 275 (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 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™ 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 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	Fixed	
Air cleaner type, all models	Dry	

Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust manifold type	Dry	
Exhaust flow at rated kW, m ³ /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.)	Flanged Outlet at Catalyst see ADV drawing	

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)	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 ₂ O)	1.74-2.74 (7-11)	
LPG vapor withdrawal fuel supply pressure, kPa (in. H ₂ O)	1.24-2.74 (5-11)	
Dual fuel engine, LPG vapor withdrawal fuel supply pressure, kPa (in. H ₂ 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 ₄ and higher, % by volume	0.3 max.	2.5 max.
Sulfur, ppm mass	25 max.	
Lower heating value, MJ/m ³ (Btu/ft ³), 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.)	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 ₂ 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 ³ /min. (scfm) ‡	198 (7000)	153 (5400)
Combustion air, m ³ /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)

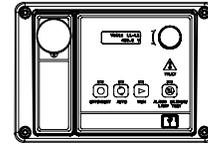
‡ Air density = 1.20 kg/m³ (0.075 lbm/ft³)

Fuel Consumption ‡	60 Hz	50 Hz
Natural Gas, m³/hr. (cfh) at % load	Standby Ratings	
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)
LP Gas, m³/hr. (cfh) at % load	Standby Ratings	
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)

‡ Nominal fuel rating: Natural gas, 37 MJ/m³ (1000 Btu/ft.³)
LP vapor, 93 MJ/m³ (2500 Btu/ft.³)

LP vapor conversion factors:
8.58 ft.³ = 1 lb.
0.535 m³ = 1 kg.
36.39 ft.³ = 1 gal.

Controllers

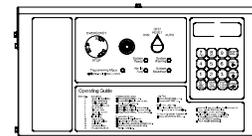


Decision-Maker® 3000 Controller

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 modem configuration
- 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.

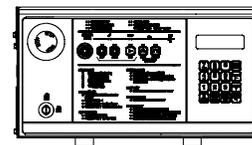


Decision-Maker® 550 Controller

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.



Decision-Maker® 6000 Paralleling Controller

Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities for paralleling multiple generator sets.

- Paralleling capability with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
- 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 G6-107 for additional controller features and accessories.

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
- Three-Way Exhaust Catalyst

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-324470)
- 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 and 6000 controllers only)
- Customer Connection
(Decision-Maker® 550 controller only)
- Dry Contact (isolated alarm)
(Decision-Maker® 550 and 6000 controllers only)
- Input/Output Module
(Decision-Maker® 3000 controller only)
- Remote Annunciator Panel
- Remote Audiovisual Alarm Panel
(Decision-Maker® 550 and 6000 controllers only)
- Remote Emergency Stop
- Run Relay

Cooling System

- Block Heater, 1800 W, 110-120 V
- Block Heater, 2000 W, 190-240 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

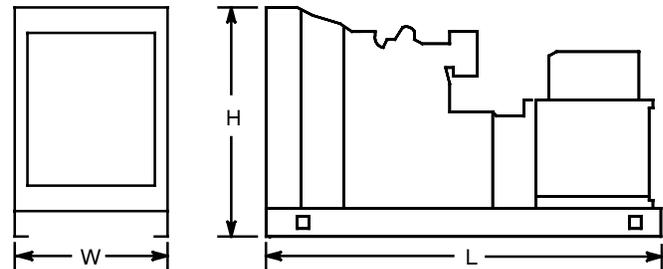
- 2-Year Basic
- 5-Year Basic
- 5-Year Comprehensive

Other Options

- _____
- _____
- _____
- _____
- _____
- _____
- _____

Dimensions and Weights

Overall Size, L x W x H, mm (in.) :
 Wide Skid (w/enclosure) 3506 x 1156 x 1696 (138.0 x 45.5 x 66.8)
 Narrow Skid 2400 x 864 x 1512 (94.5 x 34.0 x 59.5)
 Weight (radiator model), wet, kg (lb.): 1339 (2951)



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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