

KOHLER Power Systems

208-600 V

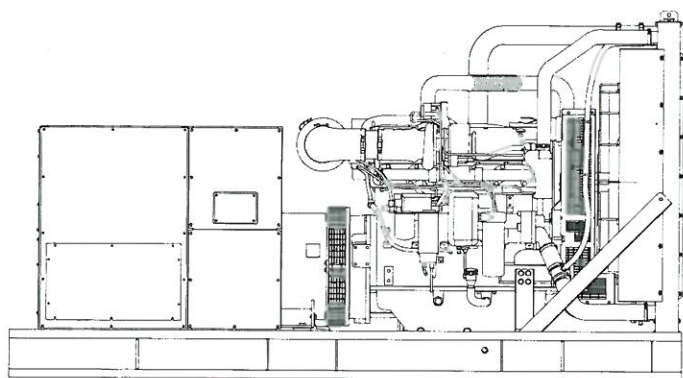
Diesel



Tier 3 EPA-Certified for Stationary Emergency Applications

Ratings Range

		60 Hz
Standby:	kW	280-360
	kVA	280-450



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 emergency 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 pilot-excited, permanent magnet (PM) alternator provides superior short-circuit capability.
 - 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 low coolant level shutdown prevents overheating (standard on radiator models only).
 - Integral vibration isolation eliminates the need for under-unit vibration spring isolators.
 - An electronic, isochronous governor delivers precise frequency regulation.
 - Multiple circuit breaker configurations.

Generator Set Ratings

Alternator	Voltage	Ph	Hz	150°C Rise Standby Rating		130°C Rise Standby Rating	
				kW/kVA	Amps	kW/kVA	Amps
4M4019	120/208	3	60	360/450	1249	350/438	1214
	127/220	3	60	360/450	1181	360/450	1181
	139/240	3	60	360/450	1083	360/450	1083
	220/380	3	60	305/381	579	305/381	579
	240/416	3	60	360/450	625	350/438	607
	277/480	3	60	360/450	541	360/450	541
4M4021	120/208	3	60	360/450	1249	360/450	1249
	127/220	3	60	360/450	1181	360/450	1181
	139/240	3	60	360/450	1083	360/450	1083
	220/380	3	60	315/394	598	315/394	598
	240/416	3	60	360/450	625	360/450	625
	277/480	3	60	360/450	541	360/450	541
5M4027	120/208	3	60	360/450	1249	360/450	1249
	127/220	3	60	360/450	1181	360/450	1181
	120/240	1	60	305/305	1271	280/280	1167
	139/240	3	60	360/450	1083	360/450	1083
	220/380	3	60	360/450	684	360/450	684
	240/416	3	60	360/450	625	360/450	625
277/480	3	60	360/450	541	360/450	541	
4M4266	347/600	3	60	360/450	433	360/450	433
5M4272	347/600	3	60	360/450	433	360/450	433

RATINGS: All three-phase units are rated at 0.8 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. Ratings are in accordance with ISO-8528-1 and ISO-3046-1. 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.

Alternator Specifications

Specifications	Alternator
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Permanent-Magnet, Pilot Exciter
Leads: quantity, type	12, Reconnectable 4, 600 V
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H, Synthetic, Nonhygroscopic
Temperature rise	130°C, 150°C Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Rotor balancing	125%
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	4M4019 (12 lead) 1325
480 V	4M4021 (12 lead) 1350
480 V	5M4027 (12 lead) 1550
600 V	4M4266 (4 lead) 1300
600 V	5M4272 (4 lead) 1750

- 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.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.
- Brushless alternator with brushless pilot exciter for excellent load response.

Application Data

Engine

Engine Specifications	
Engine manufacturer	John Deere
Engine model	6135HFG84
Engine type	4-Cycle, Turbocharged, Charge Air-Cooled
Cylinder arrangement	6, Inline
Displacement, L (cu. in.)	13.5 (824)
Bore and stroke, mm (in.)	132 x 165 (5.2 x 6.5)
Compression ratio	16.0:1
Piston speed, m/min. (ft./min.)	594 (1950)
Main bearings: quantity, type	7, Replaceable Insert
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	401 (538)
Crankshaft material	Forged Steel
Valve material	
Intake/Exhaust	Nickel-Chromium Head Chromium-Silicone Stem
Governor: type, make/model	JDEC Electronic L15
Frequency regulation, no-load to full-load	Isochronous
Frequency regulation, steady state	±0.25%
Frequency	Fixed
Air cleaner type, all models	Dry

Exhaust

Exhaust System	
Exhaust manifold type	Dry
Exhaust flow at rated kW, m ³ /min. (cfm)	68 (2387)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	547 (1017)
Maximum allowable back pressure, kPa (in. Hg)	Min. 4 (1.2) Max. 7.5 (2.2)
Engine exhaust outlet size, mm (in.)	See ADV drawing

Engine Electrical

Engine Electrical System		
Battery charging alternator:		
Ground (negative/positive)		Negative
Volts (DC)		24
Ampere rating		60
Starter motor rated voltage (DC)		24
Battery, recommended cold cranking amps (CCA):		
Qty., CCA rating each		Two, 950
Battery voltage (DC)		12

Fuel

Fuel System		
Fuel supply line, min. ID, mm (in.)		13 (0.50)
Fuel return line, min. ID, mm (in.)		10 (0.38)
Max. lift, fuel pump: type, m (ft.)		Electronic 2.1 (6.8)
Max. fuel flow, Lph (gph)		180.6 (47.7)
Max. return line restriction, kPa (in. Hg)		35 (10.3)
Fuel prime pump		Electronic
Fuel filter		
Secondary		2 Microns @ 98% Efficiency
Primary		10 Microns
Water Separator		Yes
Recommended fuel		#2 Diesel

Lubrication

Lubricating System	
Type	Full Pressure
Oil pan capacity, L (qt.)	40.0 (42.3)
Oil pan capacity with filter, L (qt.)	42.0 (44.4)
Oil filter: quantity, type	1, Cartridge
Oil cooler	Water-Cooled

Application Data

Cooling

Radiator System	
Ambient temperature, °C (°F)*	50 (122)
Engine jacket water capacity, L (gal.)	18 (4.8)
Radiator system capacity, including engine, L (gal.)	67.2 (17.8)
Engine jacket water flow, Lpm (gpm)	400 (106)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	175 (9661)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	75 (4269)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	965 (38)
Fan, kWm (HP)	18 (24)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)

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

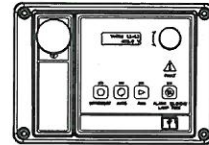
Operation Requirements

Air Requirements	
Radiator-cooled cooling air, m ³ /min. (scfm)†	651 (23000)
Cooling air required for generator set when equipped with city water cooling or remote radiator, based on 14°C (25°F) rise, m ³ /min. (cfm)†	297 (10500)
Combustion air, m ³ /min. (cfm)	25 (883)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	43 (2448)
Alternator, kW (Btu/min.)	36.6 (2082)

† Air density = 1.20 kg/m³ (0.075 lbf/ft³)

Fuel Consumption	
Diesel, Lph (gph) at % load	Standby Rating
100%	100.3 (26.5)
75%	80.3 (21.2)
50%	56.7 (15.0)
25%	29.5 (7.8)

Controllers

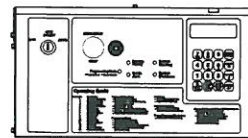


Decision-Maker® 3000 Controller

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.

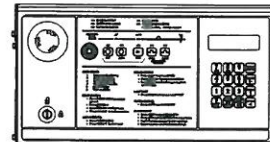


Decision-Maker® 550 Controller

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.



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
- Customer Connection
(standard with Decision-Maker® 6000 controller only)
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature

Available Options

Approvals and Listings

- CSA Approval
- UL 2200 Listing

Enclosed Unit

- Sound Enclosure Level 1 and Subbase Fuel Tank Packages
- Sound Enclosure Level 2 and Subbase Fuel Tank Packages
- Weather Enclosure and Subbase Fuel Tank Packages

Open Unit

- Exhaust Silencer, Critical (kit: PA-354880)
- Flexible Exhaust Connector, Stainless Steel

Fuel System

- Flexible Fuel Lines (Select rubber or stainless steel)

Controller

- Common Failure Relay
(Decision-Maker® 550 and 6000 controllers only)
- Communication Products and PC Software
- Customer Connection (Decision-Maker® 550 controller only)
- Decision-Maker® Paralleling System (DPS)
(Decision-Maker® 6000 controller only)
- Dry Contact (isolated alarm)
(Decision-Maker® 550 and 6000 controllers only)
- Input/Output Module (Decision-Maker® 3000 controller only)
- Remote Audiovisual Alarm Panel
(Decision-Maker® 550 controller only)
- Remote Emergency Stop
- Remote Serial Annunciator Panel
- Run Relay

Cooling System

- Block Heater, 2500 W, 90-120 V, 1 Ph
- Block Heater, 2500 W, 190-208 V, 1 Ph
- Block Heater, 2500 W, 210-240 V, 1 Ph
- Block Heater, 2500 W, 380-480 V, 1 Ph
Recommended for ambient temperatures below 0°C (32°F)
- Radiator Duct Flange

Electrical System

- Alternator Strip Heater
- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater
- Line Circuit Breaker (NEMA type 1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA type 1 enclosure)

Paralleling System

- Manual Speed Adjust
- Voltage Sensing

Miscellaneous

- Air Cleaner, Heavy Duty
- Air Cleaner Restriction Indicator
- Crankcase Emissions Canister
- Engine Fluids Added
- Rated Power Factor Testing

Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

Warranty

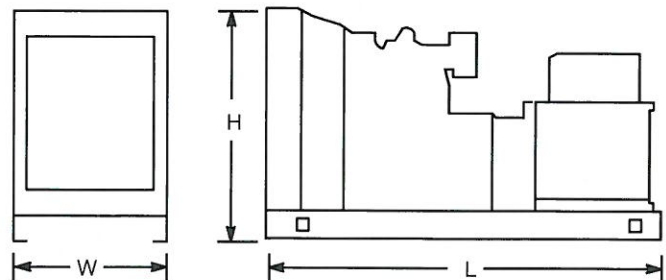
- 2-Year Basic
- 5-Year Basic
- 5-Year Comprehensive

Other Options

- _____
- _____
- _____
- _____
- _____

Dimensions and Weights

Overall Size, L x W x H, max., mm (in.): 3630 x 1425 x 1993
 (142.9 x 56.1 x 78.5)
 Weight (radiator model), wet, max., kg (lb.): 3883 (8560)



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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