

Model: **230REOZDD**

KOHLER POWER SYSTEMS

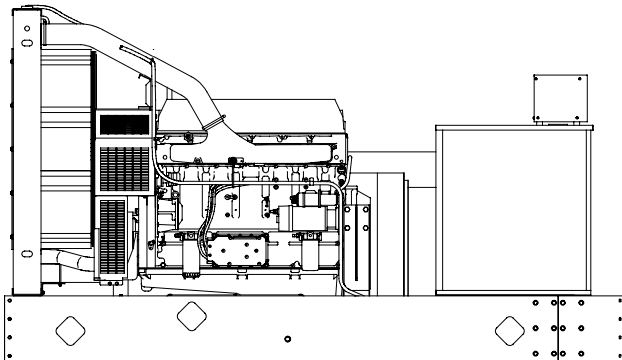
208-600 V

Diesel



Ratings Range

60 Hz			
Standby:	kW	230-240	
	kVA	288-300	
Prime:	kW	210-215	
	kVA	263-269	



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 complies with ISO 8528-5 requirements for transient performance.
- 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.
- The 60 Hz generator set engine is certified by the Environmental Protection Agency (EPA) to conform to Tier 3 nonroad emissions regulations.
- A one-year limited warranty covers all systems and components. Two-, five-, and ten-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.
- Other features:
 - Controllers are available for all applications. See controller features inside.
 - 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.
 - Electronic engine controls and a generator set microprocessor controller combine to deliver one of the most advanced control systems in today's market.

Generator Set Ratings

Alternator	Voltage	Ph	Hz	130°C Rise Standby Rating		105°C Rise Prime Rating	
				kW/kVA	Amps	kW/kVA	Amps
4UA9	120/208	3	60	240/300	833	215/269	746
	120/240	3	60	240/300	722	215/269	647
	127/220	3	60	240/300	787	215/269	705
	139/240	3	60	240/300	722	215/269	647
	220/380	3	60	230/288	437	210/263	399
	240/416	3	60	240/300	416	215/269	373
	277/480	3	60	240/300	361	215/269	323
	347/600	3	60	230/288	277	210/263	253

RATINGS: All three-phase units are rated at 0.8 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 1.5% per 305 m (1000 ft.) elevation above 2288 m (7500 ft.) up to a maximum elevation of 3660 m (12000 ft.). **Temperature:** Derate 1.0% per 5.5°C (10°F) temperature above 40°C (104°F). For radiator cooling system capacity, derate 1.4°C (2.5°F) per 305 m (1000 ft.) elevation above 183 m (600 ft.).

Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating Field
Exciter type	Brushless, Permanent-Magnet, Pilot Exciter
Leads: quantity, type	12, Reconnectable
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	
Permanent magnet (PM) alternator	±2% Average
550 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	4UA9
	700

- 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	
Manufacturer	Detroit Diesel
Engine: model, type	S60, 4-Cycle Turbocharged, Charge Air-Cooled
Cylinder arrangement	6, Inline
Displacement, L (cu. in.)	14.0 (855)
Bore and stroke, mm (in.)	133 x 168 (5.24 x 6.61)
Compression ratio	16.0:1
Piston speed, m/min. (ft./min.)	604 (1980)
Main bearings: quantity, type	7, Precision Half-Shell
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	310 (415)
Cylinder head material	Cast Iron
Piston: type, material	Crosshead, Malleable Iron
Crankshaft material	Forged Steel
Valve material:	
Intake	Iron-Based Seat
Exhaust	Nickel-Based Seat
Governor: type, make/model	DDEC Electronic Control
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 flow at rated kW, m³/min. (cfm)	69.1 (2441)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	428 (803)
Maximum allowable back pressure, kPa (in. Hg)	10.2 (3.0)
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	40
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.)	8 (0.31)
Max. lift, engine-driven fuel pump, m (ft.)	2.1 (6.8)
Max. fuel flow, Lph (gph)	329 (86.8)
Fuel prime pump	N/A
Fuel filter: quantity, type	2, Primary/Secondary
Recommended fuel	#2 Diesel

Lubrication

Lubricating System	
Type	Full Pressure
Oil pan capacity, L (qt.)	30 (32)
Oil pan capacity with filter, L (qt.)	36 (38)
Oil filter: quantity, type	2, Cartridge
Oil cooler	Water-Cooled

Application Data

Cooling

Radiator System

Ambient temperature, °C (°F)	50 (122)
Engine jacket water capacity, L (gal.)	22.7 (6.0)
Radiator system capacity, including engine, L (gal.)	45.4 (12)
Engine jacket water flow, Lpm (gpm)	363 (96)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	109 (6201)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	72.8 (4142)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	965 (38)
Fan, kWm (HP)	22 (30)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)

Operation Requirements

Air Requirements

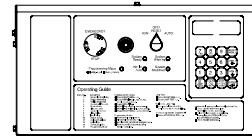
Radiator-cooled cooling air, m ³ /min. (scfm)*	561 (19800)
Combustion air, m ³ /min. (cfm)	29 (1027)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	41.6 (2368)
Alternator, kW (Btu/min.)	25.3 (1440)

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

Diesel, Lph (gph) at % load	Standby Rating
100%	76.5 (20.2)
75%	58.7 (15.5)
50%	40.9 (10.8)
25%	23.1 (6.1)

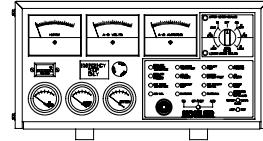
Diesel, Lph (gph) at % load	Prime Rating
100%	69.7 (18.4)
75%	53.4 (14.1)
50%	37.5 (9.9)
25%	21.2 (5.6)

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.

Standard Features

- Alternator Protection (standard with 550 controller)
- Battery Rack and Cables
- Electronic, Isochronous Governor
- Oil Drain Extension

Available Accessories

Enclosed Unit

- ☐ Weather Housing

Open Unit

- ☐ Exhaust Silencer, Hospital (kit: PA-354905)
- ☐ Exhaust Silencer, Critical (kit: PA-354880)
- ☐ Flexible Exhaust Connector, Stainless Steel

Cooling System

- ☐ Block Heater
- ☐ Radiator Duct Flange

Fuel System

- ☐ Flexible Fuel Lines
- ☐ Fuel Pressure Gauge
- ☐ Fuel/Water Separator with Prime Feature
- ☐ Hand Primer Pump
- ☐ Subbase Fuel Tanks
- ☐ Subbase Fuel Tank with Day Tank

Electrical System

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

Engine and Alternator

- ☐ Air Cleaner, Heavy Duty
- ☐ Air Cleaner Restriction Indicator
- ☐ Alternator Strip Heater
- ☐ Bus Bar Kits
- ☐ Crankcase Emission Canister
- ☐ CSA Certification
- ☐ Line Circuit Breaker (NEMA1 enclosure)
- ☐ Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)
- ☐ Rated Power Factor Testing
- ☐ Rodent Guards
- ☐ Safeguard Breaker (not available with 550 controller)
- ☐ Skid End Caps
- ☐ Voltage Regulation, 1%
- ☐ Voltage Regulator Sensing, Three-Phase

Paralleling System

- ☐ Voltage Regulator Relocation Kit

Maintenance and Literature

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

Controller

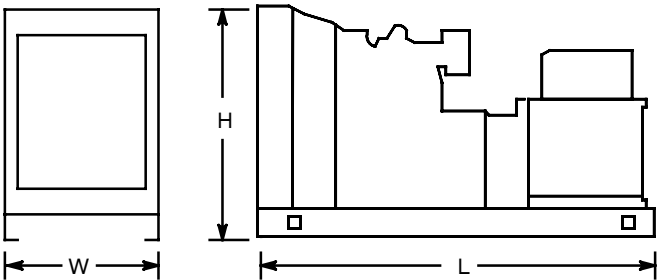
- ☐ Common Failure Relay Kit
- ☐ Communications Products and PC Software (550 controller only)
- ☐ Customer Connection Kit
- ☐ Dry Contact Kit (isolated alarm)
- ☐ Engine Prealarm Sender Kit
- ☐ Remote Annunciator Panel
- ☐ Remote Audiovisual Alarm Panel
- ☐ Remote Emergency Stop Kit
- ☐ Remote Mounting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

Miscellaneous Accessories

- ☐
- ☐
- ☐
- ☐
- ☐
- ☐

Dimensions and Weights

Overall Size, L x W x H, mm (in.): 3500 x 1250 x 1941
 (137.8 x 49.2 x 76.4)
 Weight (radiator model), wet, kg (lb.): 2721 (6000)



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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