

# Model: 250REOZV

# KOHLER POWER SYSTEMS

## 190-600 V 4-Cycle Diesel



### Ratings Range

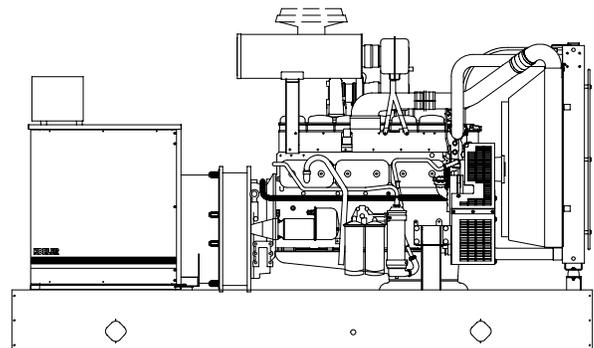
		60 Hz	50 Hz
Standby:	kW	250-265	224-252
	kVA	313-331	280-315
Prime:	kW	235-240	204-228
	kVA	294-300	255-285

### Generator Set Ratings

Alternator	Voltage	Ph	Hz	130°C Rise Standby Rating		105°C Rise Prime Rating	
				kW/kVA	Amps	kW/kVA	Amps
4UA10W/ 4UA10	120/208	3	60	260/325	902	235/294	815
	127/220	3	60	260/325	853	235/294	771
	120/240	3	60	260/325	782	235/294	707
	139/240	3	60	260/325	782	235/294	707
	220/380	3	60	250/313	475	235/294	446
	240/416	3	60	260/325	451	235/294	408
	277/480	3	60	260/325	391	235/294	353
	347/600	3	60	260/325	313	235/294	283
	110/190	3	50	224/280	851	204/255	775
	115/200	3	50	224/280	808	204/255	736
	120/208	3	50	224/280	777	204/255	708
	110/220	3	50	224/280	735	204/255	669
	220/380	3	50	224/280	425	204/255	387
	230/400	3	50	224/280	404	204/255	368
240/416	3	50	224/280	389	204/255	354	
4UA13W/ 4UA13	120/208	3	60	265/331	919	240/300	833
	127/220	3	60	265/331	869	240/300	787
	120/240	3	60	252/315	758	240/300	722
	139/240	3	60	265/331	797	240/300	722
	220/380	3	60	265/331	503	240/300	456
	240/416	3	60	265/331	460	240/300	416
	277/480	3	60	265/331	398	240/300	361
	347/600	3	60	265/331	319	240/300	289
	110/190	3	50	252/315	957	228/285	866
	115/200	3	50	252/315	909	228/285	823
	120/208	3	50	252/315	874	228/285	791
	110/220	3	50	252/315	827	228/285	748
	220/380	3	50	252/315	479	228/285	433
	230/400	3	50	252/315	455	228/285	411
240/416	3	50	252/315	437	228/285	396	

### 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 generator set complies with ISO 8528-5, Class G2 requirements for transient performance in all generator set configurations. Select the Decision-Maker™ 550 controller for improved voltage regulation and ISO 8528-5, Class G3 compliance.
- The 60 Hz generator set engine is certified by the Environmental Protection Agency (EPA) to conform to Tier 2 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:
  - Kohler's Fast-Response™ III wound field (WF) design alternator provides excellent voltage response and short-circuit capability using an auxiliary power brushless exciter.
  - Kohler's 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.
  - Air intake heater to aid cold starting.



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. **NOTE:** Order separate generator set specs for 50 or 60 Hz as this model cannot change frequency. **GENERAL GUIDELINES FOR DERATION:** *Altitude:* Derate 0.8% per 100 m (328 ft.) elevation above 1000 m (3280 ft.). *Temperature:* Derate 5.0% per 10°C (18°F) temperature above 40°C (104°F). For radiator cooling system capacity, derate 0.5°C (0.9°F) per 100 m (328 ft.) elevation above 1500 m (492 ft.).

# Alternator Specifications

Specifications	Alternator
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	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	
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%
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 4UA10W/4UA10 . . . . .	785 (60Hz), 540 (50Hz)
480 V, 380 V 4UA13W/4UA13 . . . . .	980 (60Hz), 600 (50Hz)

- 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.
- 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.

## Application Data

### Engine

Engine Specifications	60 Hz	50 Hz
Engine model	D250 9.6A60	D250 9.6A50
Engine type	4-Cycle, Turbocharged, Charge Air Cooled	
Cylinder arrangement	6, Inline	
Displacement, L (cu. in.)	9.6 (586)	
Bore and stroke, mm (in.)	120.6 x 140.0 (4.75 x 5.51)	
Compression ratio	17.0:1	
Piston speed, m/min. (ft./min.)	504 (1654)	420 (1378)
Main bearings: quantity, type	7, Precision Half-Shell	
Rated rpm	1800	1500
Max. power at rated rpm, kWm (BHP)	294 (394)	296 (397)
Cylinder head material	Cast Iron	
Piston: type, material	Swirl Chamber, Graphite-Coated Aluminum	
Crankshaft material	Forged Steel	
Valve material	Nimonic	
Governor: type, make/model	GAC ESD 5500	
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	60 Hz	50 Hz
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)	62.6 (2210)	48.1 (1700)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	558 (1036)	513 (956)
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	60 Hz	50 Hz
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
Air intake heater, amps		165

### Fuel

Fuel System	60 Hz	50 Hz
Fuel supply line, min. ID, mm (in.)	10 (0.39)	
Fuel return line, min. ID, mm (in.)	10 (0.39)	
Max. lift, engine-driven fuel pump, m (ft.)	2.0 (6.6)	
Max. fuel flow, Lph (gph)	150 (39.6)	125 (33.0)
Fuel prime pump	Manual	
Fuel filter type	Secondary, 8 Microns	
Recommended fuel	#2 Diesel	

### Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, L (qt.)	32 (34)	
Oil pan capacity with filter, L (qt.)	36 (38)	
Oil filter: quantity, type	2, Cartridge	
Oil cooler	Water-Cooled	

# Application Data

## Cooling

Radiator System	60 Hz	50 Hz
Ambient temperature, °C (°F)	50 (122)	
Engine jacket water capacity, L (gal.)	16.0 (4.2)	
Radiator system capacity, including engine, L (gal.)	37.0 (9.8)	
Engine jacket water flow, Lpm (gpm)	348 (92)	270 (71)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	103.0 (5860)	107.2 (6100)
Heat rejected to charge air cooler at rated kW, dry exhaust, kW (Btu/min.)	73.3 (4170)	74.4 (4230)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	750 (30)	
Fan, kWm (HP)	7 (9)	4 (5)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O)	0.125 (0.5)	

\* Weather and sound enclosures with internal silencer and weather housing with external silencer reduce ambient temperature capability by 5°C (9°F).

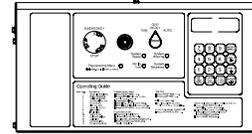
## Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm)†	335 (11830)	275 (9710)
Combustion air, m <sup>3</sup> /min. (cfm)	24 (840)	19 (660)
Heat rejected to ambient air:		
Engine, kW (Btu/min.) . . . . .	63.8 (3630)	55.4 (3150)
Alternator, kW (Btu/min.) . . . . .	19.7 (1120)	22.5 (1280)

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

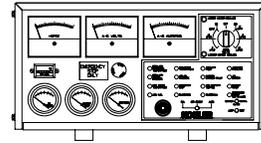
Fuel Consumption	60 Hz	50 Hz
<b>Diesel, Lph (gph) at % load</b>	<b>Standby Rating</b>	
100%	78.9 (20.8)	68.5 (18.1)
75%	56.1 (14.8)	50.0 (13.2)
50%	38.0 (10.0)	33.9 (9.0)
25%	22.3 (5.9)	19.3 (5.1)
<b>Diesel, Lph (gph) at % load</b>	<b>Prime Rating</b>	
100%	69.9 (18.5)	60.6 (16.0)
75%	50.8 (13.4)	44.6 (11.8)
50%	35.4 (9.3)	30.9 (8.2)
25%	21.1 (5.6)	17.6 (4.7)

# 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 and Accessories

### Standard Features

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

### Accessories

#### Enclosed Unit

- Sound Enclosure with Internal Silencer
- Weather Enclosure with Internal Silencer
- Weather Housing (with skid end caps and roof-mounted silencer)

#### Open Unit

- Exhaust Silencer, Hospital (kits: PA-365349, PA-365354)
- Exhaust Silencer, Critical (kits: PA-343618, PA-354809)
- Flexible Exhaust Connector, Stainless Steel

#### Cooling System

- Block Heater; recommended for ambient temperatures below 4°C (40°F)
- Radiator Duct Flange

#### Fuel System

- Flexible Fuel Lines
- Fuel Pressure Gauge
- Fuel/Water Separator with Primary Filter
- Subbase Fuel Tanks
- Subbase Fuel Tank with Day Tank

#### Electrical System

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

#### Engine and Alternator

- Alternator, Wound Field (WF)
- Alternator, Permanent Magnet (PM)
- 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)
- Optional Alternators
- 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

- Load-Sharing Module
- Reactive Droop Compensator
- Remote Speed Adjusting Control
- 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

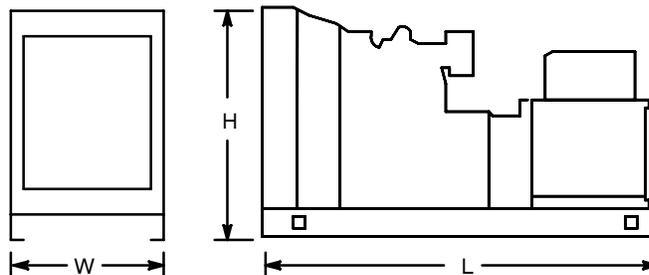
- Common Failure Relay Kit
- Communications Products and PC Software (550 controller only)
- Customer Connection Kit
- Dry Contact Kit (isolated alarm)
- Engine Prealarm Sender Kit
- Prime Power Switch Kit (550 controller only)
- Remote Annunciator Panel
- Remote Audiovisual Alarm Panel
- Remote Emergency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

#### Miscellaneous Accessories

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

#### Dimensions and Weights

Overall Size, L x W x H, mm (in.): 3300 x 1250 x 1951  
 (129.92 x 49.21 x 76.81)  
 Weight (radiator model), wet, kg (lb.): 2504 (5520)



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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