Model: 150RZD

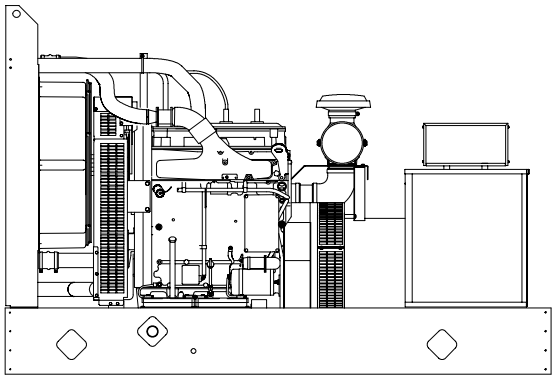
KOHLER® POWER SYSTEMS

190-600 V Gas

ISO 9001 KOHLER GENERATORS INTERNATIONALLY REGISTERED

Ratings Range

		60 Hz	50 Hz
Standby:	**kW**	100-150	90-124
	kVA	100-188	90-155
Prime:	**kW**	91-135	80-108
	kVA	91-169	80-135



Generator Ratings

				130°C Rise Standby Rating		105°C Rise Prime Rating	
Alternator	**Voltage**	**Ph**	**Hz**	**kW/kVA**	**Amps**	**kW/kVA**	**Amps**
4S13	120/208	3	60	150/188	520	130/163	452
	120/240	3	60	150/188	451	130/163	391
	120/240	1	60	100/100	417	91/91	379
	127/220	3	60	150/188	492	135/169	443
	139/240	3	60	150/188	451	135/169	406
	220/380	3	60	145/181	275	135/169	256
	277/480	3	60	150/188	226	135/169	203
	347/600	3	60	150/188	180	135/169	163
	110/190	3	50	132/165	501	120/150	456
	110/220	3	50	132/165	433	120/150	394
	110/220	1	50	90/90	409	80/80	364
	115/200	3	50	132/165	476	120/150	433
	120/208	3	50	132/165	458	120/150	416
	220/380	3	50	132/165	251	120/150	228
	230/400	3	50	132/165	238	120/150	217
	240/416	3	50	132/165	229	120/150	208
4UA9	120/208	3	60	150/188	520	135/169	469
	120/240	3	60	150/188	451	135/169	406
	127/220	3	60	150/188	492	135/169	443
	139/240	3	60	150/188	451	135/169	406
	220/380	3	60	145/181	275	135/169	257
	277/480	3	60	150/188	226	135/169	203
	347/600	3	60	150/188	180	135/169	163

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 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.
- Generator features:
  - Kohler's unique Fast-Response™ excitation system delivers the fastest voltage response in the industry.
  - The brushless, rotating-field generator has broadrange reconnectability.
  - Kohler's permanent magnet-excited generator (PMG) provides superior short-circuit capability.
- Other features:
  - Controllers are available for all applications. See controller features inside.
  - Integral vibration isolation eliminates the need for under-unit vibration spring isolators.
  - Electronic engine controls and a generator microprocessor controller combine to deliver one of the most advanced control systems in today's generator market.
  - A low-pressure natural gas fuel system enables the generator set to operate with fuel supply pressures as low as 13 cm (5 in.) water column without reducing the generator set's performance.
  - Lean-burn natural gas technology provides maximum power and fuel efficiency.

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 4.8% on 60 Hz and 0% on 50 Hz per 305 m (1000 ft.) elevation above 183 m (600 ft.). Maximum altitude capability is 1524 m (5000 ft.). *Temperature:* Derate 2.5% per 5.5°C (10°F) for 60 Hz and 0% for 50 Hz for ambient temperature above 50°C (122°F).

Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating Field
Exciter type	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	±2%
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 4S13	515 (60Hz), 362 (50Hz)
480 V 4UA9	690 (60Hz)

- 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 generator 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.
- Solid-state, volts-per-hertz voltage regulator with ±2% no-load to full-load regulation.
- Fast-Response™ brushless alternator with brushless exciter for excellent load response.

Application Data

Engine

Engine Specifications	60 Hz	50 Hz
Manufacturer	Detroit Diesel	
Engine, model	S50G	S60G
Engine, type	4-Cycle, Turbocharged	
Cylinder arrangement	4 Inline	6 Inline
Displacement, L (cu. in.)	8.5 (519)	12.7 (778)
Bore and stroke, mm (in.)	130 x 160 (5.12 x 6.30)	
Compression ratio	10.0:1	
Piston speed, m/min. (ft./min.)	576 (1890)	480 (1575)
Main bearings: quantity, type	5, Precision Half-Shell	7, Precision Half-Shell
Rated rpm	1800	1500
Max. power at rated rpm, kWm (BHP)	194 (260)	168 (225)
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	±0.5%	
Frequency	Fixed	
Air cleaner type, all models	Dry	

Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust flow at rated kW, m^3/min. (cfm)	42.5 (1500)	39.4 (1390)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	579 (1074)	551 (1024)
Maximum allowable back pressure, kPa (in. Hg)	10.2 (3.0)	
Exhaust outlet size at engine hookup, mm (in.)	102 (4)	

Engine Electrical

Engine Electrical System	60 Hz	50 Hz
Ignition system	DDEC Electronic Controlled Ignition	
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):		
Quantity, CCA rating	2, 625	2, 950
Battery, voltage (DC)	12	

Fuel

Fuel System	60 Hz	50 Hz
Fuel type	Natural Gas	
Fuel supply line inlet	2 NPT	
Natural gas fuel supply pressure, measured at the generator set fuel inlet downstream of any fuel system equipment accessories, kPa (oz./$in.^2$)	1.25–5 (2.9–11.6)	
Particulate filter requirement, mm (in.)	0.05 (0.002)	

Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, L (qt.)	21 (22)	30 (32)
Oil pan capacity with filter, L (qt.)	26 (28)	36 (38)
Oil filter: quantity, type	2, Cartridge	
Oil cooler	Water-Cooled	
Lubrication oil requirements	15W40 Mobil Delvac GEO or Exxon Estor	

Application Data

Cooling

Radiator System	60 Hz	50 Hz
Ambient temperature, °C (°F)	50 (122)	
Engine jacket water capacity, L (gal.)	16.1 (4.25)	22.7 (6.0)
Radiator system capacity, including engine, L (gal.)	37.9 (10)	45.4 (12)
Engine jacket water flow, Lpm (gpm)	284 (75)	
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	95.6 (5440)	100.4 (5710)
Heat rejected to charge cooler at rated kW, dry exhaust, kW (Btu/min.)	23.8 (1351)	13.7 (780)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	787 (31)	863 (34)
Fan, kWm (HP)	16 (21)	13 (17)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H_2O)	0.125 (0.5)	

Operation Requirements

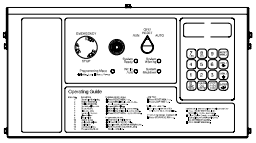
Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m^3/min. (scfm)*	362 (12800)	340 (12000)
Combustion air, m^3/min. (cfm)	14.3 (505)	12.5 (433)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	45.8 (2607)	62.9 (3580)
Generator, kW (Btu/min.)	11.4 (650)	12.8 (730)

* Air density = 1.20 kg/m^3 (0.075 lbm/ft^3)

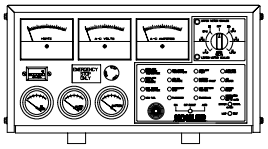
Fuel Consumption†	60 Hz	50 Hz
Natural Gas, m^3/hr. (cfh) at % load	**Standby Ratings**	
100%	54 (1910)	46 (1620)
75%	42 (1480)	39 (1370)
50%	31 (1090)	28 (1000)
25%	20 (710)	23 (820)
Natural Gas, m^3/hr. (cfh) at % load	**Prime Ratings**	
100%	49 (1740)	43 (1520)
75%	39 (1370)	36 (1270)
50%	29 (1020)	27 (950)
25%	18 (640)	21 (740)

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

Controllers



Decision-Maker™ 550 Controller
Audiovisual annunciation with NFPA 110 Level 1 capability.
Programmable microprocessor logic and digital display features.
Generator 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.

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Standard Features and Accessories

Additional Standard Features

- Battery Rack and Cables
- Electronic, Isochronous Governor
- Integral Vibration Isolation
- Oil Drain Extension
- Operation and Installation Literature

Accessories

Enclosed Unit

- ❑ Exhaust Silencer, Critical (50 Hz kit: PA-354258, 60 Hz kit: PA-324544)
- ❑ Exhaust Silencer, Residential (50 Hz kit: PA-354257, 60 Hz kit: PA-324542)
- ❑ Silencer Mounting Kit for Housing
- ❑ Tail Pipe and Rain Cap Kit
- ❑ Weather Housing (with roof-mounted silencer)

Open Unit

- ❑ Exhaust Silencer, Critical (kits: PA-343618, PA-354809)
- ❑ Exhaust Silencer, Residential (50Hz kits: PA-354878, PA-354879)
- ❑ Exhaust Silencer, Residential (60Hz kits: PA-343625, PA-343626)
- ❑ Flexible Exhaust Connector, Stainless Steel

Cooling System

- ❑ Block Heater
- ❑ Radiator Duct Flange

Fuel System

- ❑ Flexible Fuel Lines
- ❑ Natural Gas Filter
- ❑ Secondary Gas Solenoid Valve

Electrical System

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

Engine and Generator

- ❑ Air Cleaner Restriction Indicator
- ❑ Bus Bar Kits
- ❑ CSA Certification
- ❑ Current Transformer Kit
- ❑ Generator Strip Heater
- ❑ Line Circuit Breaker (NEMA1 enclosure)
- ❑ Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)
- ❑ NFPA 110 Literature
- ❑ Rated Power Factor Testing
- ❑ Rodent Guards
- ❑ Safeguard Breaker
- ❑ Voltage Regulation, 1%
- ❑ Voltage Regulator Sensing, Three-Phase

Maintenance

- ❑ General Maintenance Literature Kit
- ❑ Maintenance Kit (includes air and oil filters)
- ❑ Overhaul Literature Kit
- ❑ Production Literature Kit

Controller

- ❑ Common Failure Relay Kit
- ❑ Communication Products and PC Software (Decision-Maker™ 550 controller only)
- ❑ Customer Connection Kit
- ❑ Dry Contact Kit (isolated alarm)
- ❑ Emergency Stop Kit, Local (standard on Decision-Maker™ 550 controller)
- ❑ Engine Prealarm Sender Kit
- ❑ Extension Wiring Harness for Remote Mounting of Controller
- ❑ FASTCHECK® Diagnostic Fault Detector
- ❑ Prime Power Switch (Decision-Maker™ 550 controller only)
- ❑ Remote Annunciator Panel
- ❑ Remote Audiovisual Alarm Panel
- ❑ Remote Emergency Stop Kit
- ❑ Remote Mounting Cable
- ❑ Run Relay Kit

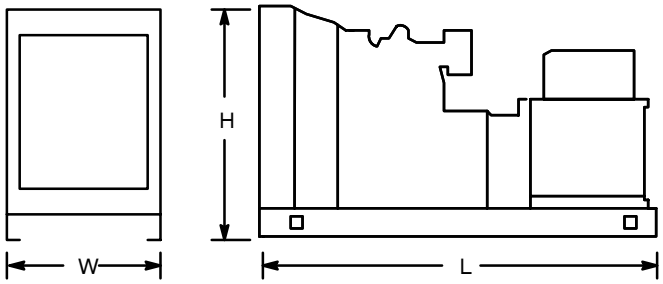
Miscellaneous Accessories

- ❑ _____
- ❑ _____
- ❑ _____
- ❑ _____
- ❑ _____
- ❑ _____
- ❑ _____
- ❑ _____
- ❑ _____

Dimensions and Weights

Overall Size, L x W x H, mm (in.):
60 Hz: 2921 x 1270 x 1975 (115.0 x 50.0 x 77.75)
50 Hz: 3061 x 1270 x 2012 (120.5 x 50.0 x 79.20)

Weight (radiator model), wet, kg (lb.):
60 Hz: 2279 (5025)
50 Hz: 2471 (5448)



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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