KOHLER. Generators

Model: KG80R

Multi-Fuel
LPG/Natural Gas

The Kohler® Advantage

- **High Quality Power**
  Kohler generators provide advanced voltage and frequency regulation along with ultra-low levels of harmonic distortion for excellent generator power quality to protect your valuable electronics.
- **Fast Response**
  Kohler's Fast-Response® X excitation system delivers excellent voltage response and short-circuit capability Using a rare-earth permanent magnet (PM)-excited alternator.
- **Extraordinary Reliability**
  Kohler is known for extraordinary reliability and performance and backs that up with a 5-year/2000-hour basic warranty.
- **Quiet Operation**
  Kohler home generators provide quiet, neighborhood friendly performance.

Standard Features

- Discovery Energy, LLC 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 meets NFPA 110, Level 2, when equipped with the necessary accessories and installed per NFPA standards.
- The generator set accepts rated load in one step.
- A standard 5 year/2000-hour basic warranty covers all systems and components.
- Quick-ship (QS) models with selected features are available. See your Kohler dealer for details.
- Kohler® APM402 controller. See controller features on page 3.
- The electronic, isochronous governor incorporates an integrated drive-by-wire throttle body actuator delivering precise frequency regulation.
- Engine Features:
  - Powerful and reliable Kohler 6.2 L Turbo charged liquid-cooled engine
  - Electronic engine management system
  - Simple field conversion between natural gas and LP vapor fuels while maintaining emission certification
- Approved for stationary standby applications in locations served by a reliable utility source.
- Certifications:
  - The 60 Hz generator set engine is certified by the Environmental Protection Agency (EPA) to conform to the New Source Performance Standard (NSPS) for stationary spark-ignited emissions.
  - cUL/UL 2200 listed and CSA certified.
  - Accepted by the Massachusetts Board of Registration of Plumbers and Gas Fitters.

Generator Set Ratings

				Natural Gas Standby Rating		LP Gas Standby Rating		Line Circuit Breaker
Alternator	**Voltage**	**Ph**	**Hz**	**kW/kVA**	**Amps**	**kW/kVA**	**Amps**	**Amps**
4R9X	120/208	3	60	80/100	278	80/100	278	300
	127/220*	3	60	80/100	263	80/100	263	-
	120/240	3	60	80/100	241	80/100	241	250
	120/240*	1	60	77/77	321	77/77	321	-
	139/240*	3	60	80/100	241	80/100	241	-
	220/380*	3	60	80/100	152	80/100	152	-
	270/480	3	60	80/100	121	80/100	121	125
4T9X	120/240	1	60	80/80	334	80/80	334	350

* Voltage configuration not available from the factory. Field-adjustable by an authorized service technician.

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. 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. For dual fuel engines, use the natural gas ratings for both the primary and secondary fuels.

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Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Rare-Earth Permanent Magnet
Leads: quantity, type	
4RX	12, Reconnectable
4TX	4, 120/240 V
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	±0.5%
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 4R9X (12 lead)	385 (60 Hz)
240 V 4T9X (4 lead)	237 (60 Hz)

- The unique Fast-Response® X excitation system delivers excellent voltage response and short-circuit capability using a rare-earth, permanent magnet (PM)-excited alternator.
- Brushless, rotating-field alternator.
- 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.
- Windings are vacuum-impregnated with epoxy varnish for dependability and long life.
- Total harmonic distortion (THD) from no load to full load with a linear load is less than 3.2%.

Application Data

Engine

Engine Specifications	60 Hz
Manufacturer	Kohler
Engine: model, type	KG6208TSD 6.2 L Turbocharged, Aftercooled KG6208TSC* 6.2 L Turbocharged, Aftercooled
Cylinder arrangement	V-8
Displacement, L (cu. in.)	6.2 (378)
Bore and stroke, mm (in.)	101.6 x 95.25 (4.00 x 3.75)
Compression ratio	9.8:1
Rated rpm	1800
Max. power at rated rpm, kW (HP)	
Natural Gas	93.6 (126)
LPG	94.6 (127)
Cylinder head material	Cast Aluminum
Piston type and material	Cast Aluminum
Crankshaft material	Cast Iron
Valve (exhaust) material	Forged Steel
Governor type	Electronic
Frequency regulation, no-load to full-load	Isochronous
Frequency regulation, steady state	±1.0%
Frequency	Fixed
Air cleaner type, all models	Dry

* KG6208TSC includes catalyst (60 Hz only).

Exhaust

Exhaust System	60 Hz
Exhaust manifold type	Dry
Exhaust flow at rated kW, m^3/min. (cfm)	18 (636)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	715 (1319)
Maximum allowable back pressure, kPa (in. Hg)	12 5 (3.7)
Exhaust outlet size at engine hookup, mm (in.)	88.9 (3.5)

Engine Electrical

Engine Electrical System	60 Hz
Ignition system	Coil Pack
Battery charging alternator:	
Ground (negative/positive)	Negative
Volts (DC)	12
Ampere rating	130
Starter motor rated voltage (DC)	12
Battery, recommended cold cranking amps (CCA):	
Qty., rating for - 18°C (0°F)	One, 650
Battery voltage (DC)	12

Fuel

Fuel System	60 Hz
Fuel type	Natural Gas, LP Gas, or Dual Fuel
Fuel supply line inlet	1.25 NPT
Natural gas and LPG vapor fuel supply pressure, kPa (in. H_2O)	1.74-2.74 (7-11)

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.

Lubrication

Lubricating System	60 Hz
Type	Full Pressure
Oil pan capacity, L (qt.)	5.7 (6.0)
Oil pan capacity with filter and oil cooler, L (qt.)	8.0 (8.5)
Oil filter: quantity, type §	1, Cartridge

§ Kohler recommends the use of Kohler Genuine oil and filters.

Cooling

Radiator System	60 Hz
Ambient temperature, °C (°F)	45 (113)
Engine jacket water capacity, L (gal.)	7.3 (1.93)
Radiator system capacity, including engine, L (gal.)	22.7 (6.0)
Engine jacket water flow, Lpm (gpm)	112.5 (29.7)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	66.5 (3785)
Heat rejected to charge air cooler at rated kW, dry exhaust, kW (Btu/min.)	9 (512)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	711 (28)
Fan, kWm (HP)	7.0 (9.4)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H_2O)	0.12 (0.5)

Operation Requirements

Air Requirements	60 Hz
Radiator-cooled cooling air, m^3/min. (scfm) †	230 (8122)
Combustion air, m^3/min. (cfm)	5.3 (187)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	24 (1366)
Alternator, kW (Btu/min.)	8.8 (500)

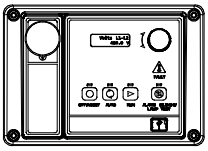
† Air density = 1.20 kg/m^3 (0.075 lbm/ft^3)

Fuel Consumption ‡	60 Hz
Natural Gas, m^3/hr. (cfh) at % load	**Standby Ratings**
100%	34.0 (1202)
75%	29.2 (1032)
50%	22.7 (803)
25%	14.9 (527)
LP Gas, m^3/hr. (cfh) at % load	**Standby Ratings**
100%	14.7 (521)
75%	11.7 (413)
50%	7.7 (272)
25%	5.2 (183)

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

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

Controllers



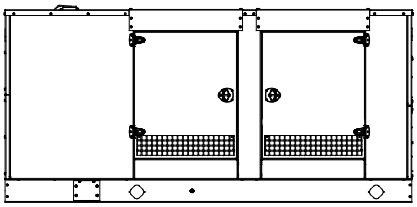
APM402 Controller
Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- 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 2 capability

Refer to G6-161 for additional controller features and accessories.

Modbus® is a registered trademark of Schneider Electric.

Sound Enclosure



- Model KG80R sound levels are 67 dB(A) during normal operation*.
- All sound levels are measured at a distance of 23 ft. (7 m) from the generator set.
- Sound attenuating enclosure uses acoustic insulation that meets UL 94 HF1 flammability classification and repels moisture absorption.
- Vertical air inlet and outlet discharge with 90 degree bends to redirect air and reduce noise.
- Internal-mounted critical silencer and flexible exhaust connector.
- Skid-mounted, steel (standard) or aluminum (optional) construction with hinged doors.
- Fade-, scratch-, and corrosion-resistant Kohler® Cashmere Power Armor™ textured e-coat paint.
- Lockable, flush-mounted door latches.
- Certified to withstand 299 kph (186 mph) wind load rating (aluminum enclosures only).

* Lowest of 8 points measured around the generator. Sound levels at other points around generator may be higher depending on installation parameters.

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Discovery Energy, LLC
200 Twin Oaks Road, Kohler, WI 53044 USA
For the nearest sales and service outlet in the US and Canada, phone 1-800-544-2444
kohlergenerators.com

Standard Features

- Air Cleaner Restriction Indicator
- Alternator Protection
- Battery Rack and Cables
- Battery Charger, 12 V, 6 A
- Block Heater, 1500 W
- cUL/UL 2200 Listed, CSA Certified
- Electronic, Isochronous Governor
- Engine Fluids Added(Oil & Coolant)
- Flexible Fuel Line (for fuel supply connection)
- 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
- Line Circuit Breaker, Thermal Magnetic, 80% Rated, 3 Pole
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature
- Rodent Guards
- Secondary Gas Solenoid Valve
- Steel Sound Enclosure
- 5 year/2000 Hour Basic Warranty

Available Options

Approvals and Listings

❑ Exhaust catalyst* QS Factory installed only

Enclosure

❑ Aluminum Sound Enclosure

Fuel System

❑ Dual Fuel NG/LPG (automatic changeover)*QS factory installed only.

Controller

❑ Remote Emergency Stop
❑ Run Relay
❑ Remote Annunciator panel
❑ Two Input/Five Output Module

Automatic Transfer Switches and Accessories

❑ For larger than 400 A or 3 phase, KEP Service Entrance Rated Automatic Transfer Switch option is available
❑ For larger than 400 A or 3 phase, KSS Standard Automatic Transfer Switch option is available
❑ Load shed kit for RDT
❑ Model RDT Automatic Transfer switch
❑ Power relay modules (use up to 4 relay modules for each load management device)

Electrical System

❑ Alternator Strip Heater
❑ Battery
❑ Battery Heater

Literature

❑ General Maintenance
❑ Overhaul
❑ Production

Warranty

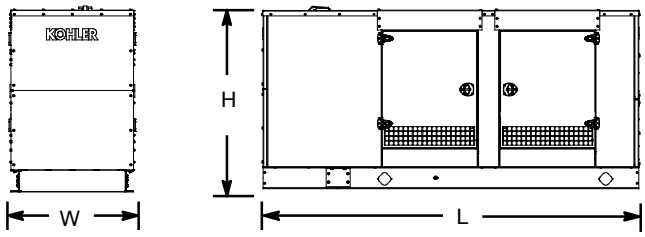
❑ 5-Year Premium Limited Warranty

Dimensions and Weights

Overall Size, L x W x H, mm (in.) :
3525 x 1154 x 1665 (138.8 x 45.4 x 65.5)

Weight, wet, kg (lb.):

With steel sound enclosure	1427 (3146)
With aluminum sound enclosure	1337 (2948)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local dealer for more detailed information.

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