Model: 45RZG

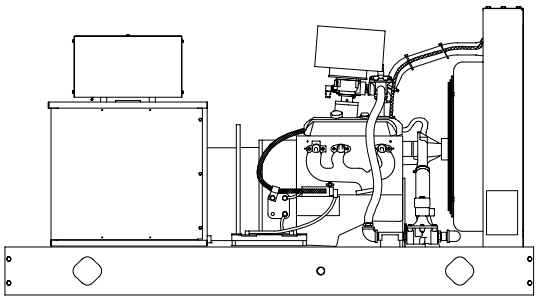
KOHLER® POWER SYSTEMS

110–600 V **Gas**

ISO 9001 KOHLER GENERATORS INTERNATIONALLY REGISTERED

Ratings Range

		60 Hz	50 Hz
Standby:	**kW**	37–46	32–38
	kVA	37–58	32–48
Prime:	**kW**	33–41	29–34
	kVA	33–51	29–43



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 provides one-step load acceptance.
- 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:
  - A rugged industrial gas engine delivers rated power at 1800 rpm (60 Hz) and 1500 rpm (50 Hz).
  - Controllers are available for all applications. See controller features inside.
  - The electronic, isochronous governor incorporates an integrated drive-by-wire throttle body actuator delivering precise frequency regulation.

Generator Ratings

				Natural Gas				LP Gas			
				130°C Rise Standby Rating		105°C Rise Prime Rating		130°C Rise Standby Rating		105°C Rise Prime Rating	
Generator	**Voltage**	**Ph**	**Hz**	**kW/kVA**	**Amps**	**kW/kVA**	**Amps**	**kW/kVA**	**Amps**	**kW/kVA**	**Amps**
4P7B	120/208	3	60	40/50	139	36/45	125	45/56	156	40/50	139
	127/220	3	60	40/50	131	36/45	118	45/56	148	40/50	131
	120/240	3	60	40/50	120	36/45	108	45/56	135	40/50	120
	120/240	1	60	37/37	154	34/34	142	41/41	171	38/38	158
	139/240	3	60	40/50	120	36/45	108	45/56	135	40/50	120
	220/380	3	60	40/50	76	36/45	68	45/56	85	40/50	76
	277/480	3	60	40/50	60	36/45	54	45/56	68	40/50	60
	347/600	3	60	40/50	48	36/45	43	45/56	54	40/50	48
	110/190	3	50	33/41	125	30/37	112	36/45	137	33/41	125
	115/200	3	50	33/41	118	30/37	107	36/45	130	33/41	118
	120/208	3	50	33/41	114	30/37	103	36/45	125	33/41	114
	110/220	3	50	33/41	108	30/37	97	36/45	118	33/41	108
	110/220	1	50	31/31	141	28/28	127	34/34	155	31/31	141
	220/380	3	50	33/41	62	30/37	56	36/45	68	33/41	62
	230/400	3	50	33/41	59	30/37	53	36/45	65	33/41	59
	240/416	3	50	33/41	57	30/37	51	36/45	62	33/41	57
4P8	120/208	3	60	41/51	142	37/46	128	46/58	160	42/53	146
	127/220	3	60	41/51	134	37/46	121	46/58	151	42/53	138
	120/240	3	60	41/51	123	37/46	111	46/58	138	42/53	126
	120/240	1	60	39/39	163	35/35	146	44/44	183	39/39	163
	139/240	3	60	42/53	126	38/48	114	46/58	138	42/53	126
	220/380	3	60	41/51	78	37/46	70	46/58	87	42/53	80
	277/480	3	60	42/53	63	38/48	57	46/58	69	42/53	63
	347/600	3	60	42/53	51	38/48	46	46/58	55	42/53	51
	110/190	3	50	33/41	125	30/37	112	37/46	140	34/42	128
	115/200	3	50	33/41	118	30/37	107	37/46	133	34/42	121
	120/208	3	50	33/41	114	30/37	103	37/46	128	34/42	117
	110/220	3	50	33/41	108	30/37	97	37/46	121	34/42	110
	110/220	1	50	31/31	141	29/29	132	35/35	159	32/32	145
	220/380	3	50	33/41	62	30/37	56	37/46	70	34/42	64
	230/400	3	50	33/41	59	30/37	53	37/46	66	34/42	61
	240/416	3	50	33/41	57	30/37	51	37/46	64	34/42	58
4Q10	120/240	1	60	41/41	171	37/37	154	45/45	188	41/41	171
	110/220	1	50	33/33	150	30/30	136	37/37	168	34/34	155

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:* 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 4.0% per 305 m (1000 ft.) elevation above 153 m (500 ft.). *Temperature:* Derate 1.0% per 5.5°C (10°F) temperature above 29°C (85°F).

Alternator Specifications

Specifications	Generator
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 MG1-1.66
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%
Unbalanced load capability	100% of Rated Standby Current
One-step load acceptance	100% of Rating
Peak motor starting kVA:	(35% dip for voltages below)
480 V, 380 V 4P7B	175 (60Hz), 125 (50Hz)
480 V, 380 V 4P8	210 (60Hz), 145 (50Hz)
240 V, 220 V 4Q10	— (60Hz), — (50Hz)

- Complies with NEMA, IEEE, and ANSI standards for temperature rise.
- Sustains short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustains short-circuit current enabling downstream circuit breakers to trip without collapsing the generator field.
- Self-ventilation, 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	General Motors	
Engine: model, type	Industrial Powertrain 4.3 L, 4-Cycle Natural Aspiration	
Cylinder arrangement	V-6	
Displacement, L (cu. in.)	4.3 (262)	
Bore and stroke, mm (in.)	101.6 x 88.4 (4.00 x 3.48)	
Compression ratio	9.05:1	
Piston speed, m/sec. (ft./min.)	5.30 (1044)	4.42 (870)
Main bearings: quantity, type	4, Babbitt	
Rated rpm	1800	1500
Max. power at rated rpm, kW (HP)	56.0 (75)	44.8 (60)
Cylinder head material	Cast Iron	
Piston type and material	High Silicon Aluminum	
Crankshaft material	Nodular Iron	
Valve (exhaust) material	Forged Steel	
Governor: type, make/model	Electronic, Barber-Colman	
Frequency regulation, no-load to full-load	Isochronous	
Frequency regulation, steady state	±0.5%	
Air cleaner type, all models	Dry	

Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust flow at rated kW, m^3/min. (cfm)	9.3 (327)	7.8 (274)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	649 (1200)	
Maximum allowable back pressure, kPa (in. Hg)	10.2 (3.0)	
Exhaust outlet size at engine hookup, mm (in.)	76 (3.0) OD	

Engine Electrical

Fuel System	60 Hz	50 Hz
Ignition system	Electronic, Distributor	
Battery charging alternator:		
Ground (negative/positive)	Negative	
Volts (DC)	12	
Ampere rating	70	
Starter motor rated voltage (DC)	12	
Battery, recommended cold cranking amps (CCA):		
Qty., rating for -18°C (0°F)	1, 630	
Battery voltage (DC)	12	

Fuel

Fuel System	60 Hz	50 Hz
Fuel type	LP Gas or Natural Gas Vapor	
Fuel supply line inlet	1 NPTF	
Natural gas/LPG fuel supply pressure, in. H_2O (oz./$in.^2$)	7-11 (4-6)	

Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, L (qt.)	4.3 (4.5)	
Oil pan capacity with filter, L (qt.)	5.7 (6.0)	
Oil filter: quantity, type	1, Cartridge	

Application Data

Cooling (Standard Radiator)

Cooling System	60 Hz	50 Hz
Ambient temperature, °C (°F)	50 (122)	
Engine jacket water capacity, L (gal.)	6.8 (1.8)	
Radiator system capacity, including engine, L (gal.)	24.6 (6.5)	
Engine jacket water flow, Lpm (gpm)	106.0 (28)	87.1 (23)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	40.8 (2320)	36.4 (2070)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	533.4 (21)	
Fan, kWm (HP)	3.0 (4.0)	1.7 (2.3)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H_2O)	0.125 (0.5)	

Remote Radiator System*	60 Hz	50 Hz
Exhaust manifold type	Dry	
Connection sizes:		
Water inlet, mm (in.)	44.45 (1.75) ID Hose	
Water outlet, mm (in.)	38.10 (1.50) ID Hose	
Static head allowable above engine, kPa (ft. H_2O)	4.32 (17.0)	

* Contact your local distributor for cooling system options and specifications based on your specific requirements.

City Water Cooling (CWC) System	60 Hz	50 Hz
Exhaust manifold type	Dry	
System capacity, L (gal.)	—	
City water consumption at 10°C (50°F), Lpm (gpm)	—	
Connection sizes:		
Water inlet, mm (in.)	—	
Water outlet, mm (in.)	—	

Operation Requirements

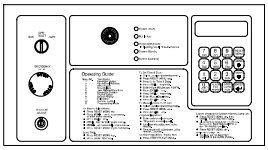
Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m^3/min. (scfm)†	214 (7540)	161 (5700)
Cooling air required for generator set when equipped with CWC or remote radiator, based on 14°C (25°F) rise and ambient temperature of 29°C (85°F), m^3/min. (cfm)	99 (3500)	85 (3000)
Combustion air, m^3/min. (cfm)	2.78 (98)	2.32 (82)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	19.2 (1090)	16.2 (920)
Generator, kW (Btu/min.)	7.4 (420)	6.5 (370)

† 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%	16.5 (584)	13.5 (477)
75%	13.8 (486)	10.4 (367)
50%	10.2 (360)	8.0 (281)
25%	7.7 (272)	5.8 (206)
Natural Gas, m^3/hr. (cfh) at % load	Prime Ratings	
100%	15.5 (548)	12.4 (437)
75%	12.8 (452)	9.7 (344)
50%	9.7 (344)	7.6 (267)
25%	7.5 (264)	5.7 (200)
LP Gas, m^3/hr. (cfh) at % load	Standby Ratings	
100%	7.0 (246)	6.1 (216)
75%	5.7 (202)	4.7 (167)
50%	4.2 (147)	3.4 (121)
25%	2.9 (104)	2.4 (86)
LP Gas, m^3/hr. (cfh) at % load	Prime Ratings	
100%	6.5 (230)	5.6 (198)
75%	5.3 (187)	4.4 (154)
50%	3.9 (139)	3.3 (115)
25%	2.8 (100)	2.4 (83)

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

Controllers



Available Controllers

Decision-Maker™ 340 Controller
Audio/visual annunciation with NFPA 110 Level 1 capability.
Programmable microprocessor logic and digital display features.
12- or 24-volt engine electrical system capability.
Remote start, prime power, remote annunciation, and remote communication options.

Decision-Maker™ 3+, 16-Light Controller
Audio/visual 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.

Decision-Maker™ 1 Controller
Single-light annunciation and basic controls with NFPA capability.
Relay logic features included with three controller options: standard, standard with engine gauges, and expanded with AC meters and engine gauges.
12-volt engine electrical system capability only.
Remote or automatic start options.

NOTE: See the respective controller spec sheet for additional controller features and accessories.

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Phone 1-800-544-2444

Kohler® Power Systems
Asia Pacific Headquarters
7 Jurong Pier Road
Singapore 619159
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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
- Pilot-Excited, Permanent-Magnet Generator (PMG)

Accessories

Enclosed Unit

❑ Weather Housing (includes critical silencer, mounting, tailpipe, and skid end caps)

Open Unit

❑ Exhaust Silencer, Critical
❑ Flexible Exhaust Connector, Stainless Steel

Cooling System

❑ Block Heater
❑ City Water Cooling
❑ Radiator Duct Flange
❑ Remote Radiator Cooling

Fuel System

❑ Automatic Changeover (natural gas to LP gas)
❑ Flexible Fuel Lines
❑ Gas Strainer
❑ LP Gas Liquid Withdrawal
❑ Manual Valve and Gas Solenoid Bypass
❑ Secondary Gas Solenoid Valve

Electrical System

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

Engine and Generator

❑ Air Cleaner Restrictor Indicator
❑ Bus Bar Kits
❑ CSA Certification
❑ Generator Strip Heater
❑ Line Circuit Breaker (NEMA1 enclosure)
❑ Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)
❑ Optional Generators
❑ Rated Power Factor Testing
❑ Rodent Guards
❑ Safeguard Breaker
❑ Skid End Caps
❑ Voltage Regulation, 1%
❑ Voltage Regulator Sensing, Three-Phase

Literature and Maintenance

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

Controller (Decision-Maker™ 340 and Decision-Maker™ 3+)

❑ Common Failure Relay Kit
❑ Communication Products and PC Software (Decision-Maker™ 340 controller only)
❑ Customer Connection Kit
❑ Dry Contact Kit (isolated alarm)
❑ Engine Prealarm Sender Kit
❑ Local Emergency Stop Kit
❑ Prime Power Switch (Decision-Maker™ 340 controller only)
❑ Remote Annunciator Panel
❑ Remote Audio/Visual Alarm Panel
❑ Remote Emergency Stop Kit
❑ Remote Mounting Cables
❑ Run Relay Kit

Miscellaneous Accessories

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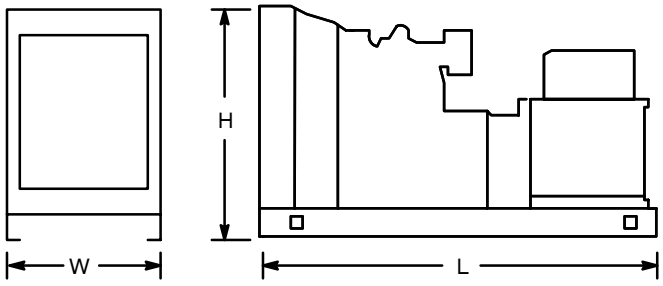
WEIGHTS AND DIMENSIONS

Overall Size, L x W x H, mm (in.):	2200 x 1040 x 1200 (86.6 x 40.9 x 47.3)
Weight (Radiator Model), wet, kg (lb.):	617 (1360)



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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