

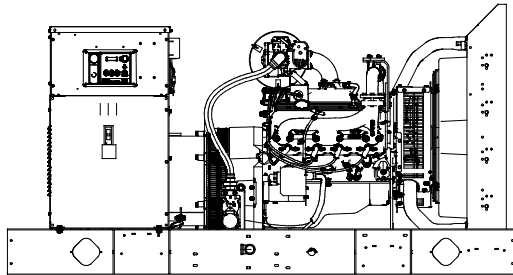


**EPA-Certified for 60 Hz Stationary Emergency Applications**

EPA certification not applicable at 50 Hz

### Ratings Range

Standby:	kW kVA	60 Hz	50 Hz
		44- 63 44- 79	40- 63 40- 66



### 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 cULus listing.
- 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.
- A one-year limited warranty covers all generator set systems and components. Two- and five-year extended limited warranties are also available.
- Alternator features:
  - The unique Fast-Response® X excitation system delivers excellent voltage response and short-circuit capability using a rare-earth, permanent magnet (PM)-excited alternator.
  - The brushless, rotating-field alternator has broadrange reconnectability.
- Automatic dual- fuel NG/LP system with reset box is available.

### Generator Set Ratings

Alternator	Voltage	Ph	Hz	Natural Gas 130°C Rise Standby Rating		LP Gas 130°C Rise Standby Rating	
				kW/kVA	Amps	kW/kVA	Amps
4P7BX	120/208	3	60	54/68	189	54/68	189
	127/220	3	60	57/71	187	57/71	187
	120/240	3	60	54/68	164	54/68	164
	120/240	1	60	44/44	184	44/44	184
	139/240	3	60	60/75	181	60/75	181
	220/380	3	60	49/61	93	49/61	93
	277/480	3	60	60/75	91	60/75	91
	347/600	3	60	57/71	69	57/71	69
	110/190	3	50	44/55	168	44/55	168
	115/200	3	50	47/59	171	47/59	171
	120/208	3	50	46/58	161	46/58	161
	110/220	3	50	47/59	155	47/59	155
	110/220	1	50	40/40	182	40/40	182
	220/380	3	50	44/55	84	44/55	84
4P8X	230/400	3	50	47/59	86	47/59	86
	240/415	3	50	46/58	81	46/58	81
	120/208	3	60	60/75	209	62/78	217
	127/220	3	60	60/75	197	62/78	205
	120/240	3	60	60/75	181	62/78	188
	120/240	1	60	57/57	238	57/57	238
	139/240	3	60	60/75	181	62/78	188
	220/380	3	60	60/75	114	62/78	119
	277/480	3	60	60/75	91	62/78	94
	347/600	3	60	60/75	73	62/78	76
	110/190	3	50	48/60	183	50/63	192
	115/200	3	50	48/60	174	50/63	182
	120/208	3	50	45/56	156	45/56	156
	110/220	3	50	48/60	158	50/63	166
110/220	1	50	48/48	219	50/50	228	
220/380	3	50	48/60	92	50/63	96	
230/400	3	50	48/60	87	50/63	91	
240/415	3	50	45/56	78	45/56	78	

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. For limited running time and continuous ratings, consult the factory. 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.

## Generator Set Ratings, continued

Alternator	Voltage	Ph	Hz	Natural Gas 130°C Rise Standby Rating		LP Gas 130°C Rise Standby Rating	
				kW/kVA	Amps	kW/kVA	Amps
4P10X	120/208	3	60	60/75	209	63/79	220
	127/220	3	60	60/75	197	63/79	208
	120/240	3	60	60/75	181	63/79	191
	120/240	1	60	60/60	250	63/63	263
	139/240	3	60	60/75	181	63/79	191
	220/380	3	60	60/75	114	63/79	121
	277/480	3	60	60/75	91	63/79	96
	347/600	3	60	60/75	73	63/79	77
	110/190	3	50	53/66	201	53/66	201
	115/200	3	50	53/66	191	53/66	191
	120/208	3	50	53/66	184	53/66	184
	110/220	3	50	53/66	174	53/66	174
	110/220	1	50	50/50	228	63/63	287
	220/380	3	50	53/66	101	53/66	101
	230/400	3	50	53/66	96	53/66	96
	240/415	3	50	53/66	92	53/66	92
4Q10X	120/240	1	60	60/60	250	60/60	250
	110/220	1	50	53/53	241	53/53	241

## Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Rare-Earth Permanent Magnet
Leads: quantity, type	12, Reconnectable
4P7BX, 4P8X, 4P10X	4, 110- 120/220- 240 V
4Q10X	Solid State, Volts/Hz
Voltage regulator	NEMA MG1
Insulation:	Class H
Material	130°C, Standby
Temperature rise	1, Sealed
Bearing: quantity, type	Flexible Disc
Coupling	Full
Amortisseur windings	Controller Dependent
Voltage regulation, no-load to full-load	
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, 400 V 4P7BX (12 lead)	180 (60 Hz), 136 (50 Hz)
480 V, 400 V 4P8X (12 lead)	261 (60 Hz), 218 (50 Hz)
480 V, 400 V 4P10X (12 lead)	275 (60 Hz), 220 (50 Hz)
240 V, 220 V 4Q10X (4 lead)	144 (60 Hz), 132 (50 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.
- The brushless, rotating-field alternator has broadrange reconnectability.
- 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.

## Application Data

### Engine

Engine Specifications	60 Hz	50 Hz
Manufacturer	Kohler	
Engine: model, type	KG6208 6.2 L Natural Aspiration	
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	10.5:1	
Rated rpm	1800	1500
Max. power at rated rpm, kW (HP)	77.0 (103)	64.3 (86)
Cylinder head material	Cast Aluminum	
Piston type and material	High Silicon 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	

### Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust manifold type	Dry	
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)	13.5 (478)	11.3 (399)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	690 (1274)	
Maximum allowable back pressure, kPa (in. Hg)	10.2 (3.0)	
Exhaust outlet size at engine hookup, mm (in.)	76 (3.0) OD	

# Application Data

## Engine Electrical

Engine Electrical System	60 Hz	50 Hz
Ignition system	Electronic, Distributor	
Ignition system	Electronic	
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, 630	
Battery voltage (DC)	12	

## Fuel

Fuel System	60 Hz	50 Hz
Fuel type	Natural Gas, LP Gas, or Dual Fuel	
Fuel supply line inlet	1 NPTF	
Natural gas fuel supply pressure, kPa (in. H <sub>2</sub> O)	1.24-2.74 (5-11)	
LPG vapor withdrawal fuel supply pressure, kPa (in. H <sub>2</sub> O)	1.24-2.74 (5-11)	
Dual fuel engine, LPG vapor withdrawal fuel supply pressure, kPa (in. H <sub>2</sub> O)	1.24 (5)	

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 <sub>4</sub> and higher, % by volume	0.3 max.	2.5 max.
Sulfur, ppm mass	25 max.	
Lower heating value, MJ/m <sup>3</sup> (Btu/ft <sup>3</sup> ), 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	50 Hz
Type	Full Pressure	
Oil pan capacity, L (qt.) §	5.7 (6.0)	
Oil pan capacity with filter, L (qt.) §	7.1 (7.5)	
Oil filter: quantity, type §	1, Cartridge	
§ Kohler recommends the use of Kohler Genuine oil and filters.		

## Cooling

Radiator System	60 Hz	50 Hz
Ambient temperature, °C (°F) *	50 (122)	
Engine jacket water capacity, L (gal.)	7.3 (1.93)	
Radiator system capacity, including engine, L (gal.)	20.8 (5.5)	
Engine jacket water flow, Lpm (gpm)	129 (34.1)	108 (28.5)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	64.0 (3640)	56.0 (3185)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	533 (21)	
Fan, kWm (HP)	2.2 (2.9)	1.3 (1.7)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O)	0.125 (0.5)	

\* Enclosure with enclosed silencer reduces 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) †	136 (4800)	113 (4000)
Combustion air, m <sup>3</sup> /min. (cfm)	5.2 (185)	4.4 (155)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	30.9 (1760)	26.5 (1510)
Alternator, kW (Btu/min.)	7.7 (440)	6.9 (390)
† Air density = 1.20 kg/m <sup>3</sup> (0.075 lbm/ft <sup>3</sup> )		

Fuel Consumption ‡	60 Hz	50 Hz
<b>Natural Gas, m<sup>3</sup>/hr. (cfh) at % load</b>	<b>Standby Ratings</b>	
100%	27.6 (975)	22.9 (810)
75%	21.8 (770)	16.9 (600)
50%	15.1 (533)	11.4 (402)
25%	8.3 (292)	6.3 (221)
<b>LP Gas, m<sup>3</sup>/hr. (cfh) at % load</b>	<b>Standby Ratings</b>	
100%	11.6 (410)	10.3 (365)
75%	9.3 (330)	6.5 (229)
50%	6.0 (213)	4.8 (168)
25%	3.9 (141)	3.0 (107)

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

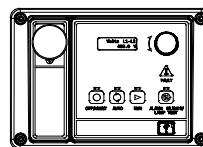
LP vapor conversion factors:

8.58 ft.<sup>3</sup> = 1 lb.

0.535 m<sup>3</sup> = 1 kg.

36.39 ft.<sup>3</sup> = 1 gal.

## Controllers



### APM402 Controller

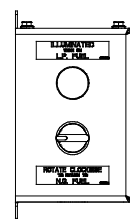
Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- 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 1 capability

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

### Dual Fuel Model Features

- Natural gas is the primary fuel. Automatically transfers back to primary fuel when LPG fuel becomes low or generator stops and restarts.
- The patented reset box on the generator provides the ability to manually transfer back to natural gas.



Dual Fuel Reset Box

## Standard Features

- Alternator Protection
- Battery Rack and Cables
- Electronic, Isochronous Governor
- 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
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature

## Available Options

### Approvals and Listings

- cULus (UL 2200 and CSA)
- Hurricane Rated Enclosure
- IBC Seismic Certification

### Enclosed Unit

- Sound Enclosure (with enclosed critical silencer)
- Weather Enclosure (with enclosed critical silencer)

### Open Unit

- Exhaust Silencer, Critical (kit: PA-352663)
- Flexible Exhaust Connector, Stainless Steel

### Fuel System

- Dual Fuel NG/LPG (automatic changeover)
- Flexible Fuel Line (required when the generator set skid is spring mounted)
- Fuel Filter Kit

### Controller

- Common Fault Relay
- Two Input/Five Output Module
- Remote Annunciator Panel
- Remote Emergency Stop
- Run Relay
- Manual Speed Adjust

### Cooling System

- Block Heater, 1500 W, 110-120 V  
Required for ambient temperatures below 10°C (50°F)
- Radiator Duct Flange

## Electrical System

- Alternator Strip Heater
- Battery
- Battery Charger
- Battery Charger Temperature Compensation
- Battery Heater
- Line Circuit Breaker (NEMA1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)

## Miscellaneous

- Air Cleaner Restrictor Indicator
- Certified Test Report
- Engine Fluids (oil and coolant) Added
- Rated Power Factor Testing
- Rodent Guards
- Open Unit Accessory Kit (stone guards, radiator duct flange, flexible exhaust)

## Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

## Warranty

- 2-Year Basic Limited Warranty
- 5-Year Basic Limited Warranty
- 5-Year Comprehensive Limited Warranty

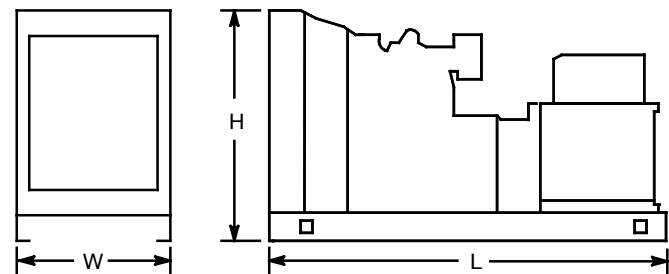
## Other Options

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

## Dimensions and Weights

Overall Size, L x W x H, mm (in.):

Wide Skid	2200 x 1040 x 1170 (86.6 x 40.9 x 46.1)
Narrow Skid	2200 x 864 x 1170 (86.6 x 34.0 x 46.1)
Weight (radiator model), wet, kg (lb.):	862 (1900)



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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