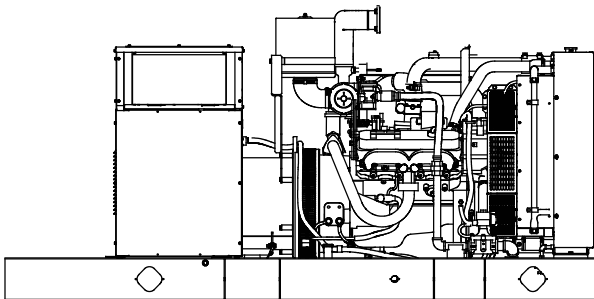




Ratings Range

Standby:	kW kVA	60 Hz	50 Hz
		77-100 77-125	73-100 73-125



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 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.

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
4R9X	120/208	3	60	98/123	340	98/123	340
	127/220	3	60	98/123	321	98/123	321
	120/240	3	60	98/123	295	98/123	295
	120/240	1	60	77/77	321	77/77	321
	139/240	3	60	98/123	295	98/123	295
	220/380	3	60	98/123	186	98/123	186
	277/480	3	60	98/123	147	98/123	147
	347/600	3	60	98/123	118	98/123	118
	110/190	3	50	74/93	283	74/93	283
	115/200	3	50	74/93	268	74/93	268
	120/208	3	50	74/93	258	74/93	258
	110/220	3	50	74/93	244	74/93	244
	110/220	1	50	70/70	318	70/70	318
	220/380	3	50	74/93	141	74/93	141
230/400	3	50	74/93	134	74/93	134	
240/416	3	50	74/93	129	74/93	129	
4R12X	120/208	3	60	100/125	347	100/125	347
	127/220	3	60	100/125	328	100/125	328
	120/240	3	60	100/125	301	100/125	301
	120/240	1	60	91/91	379	91/91	379
	139/240	3	60	100/125	301	100/125	301
	220/380	3	60	100/125	190	100/125	190
	277/480	3	60	100/125	150	100/125	150
	347/600	3	60	100/125	120	100/125	120
	110/190	3	50	76/95	289	76/95	289
	115/200	3	50	76/95	274	76/95	274
	120/208	3	50	76/95	264	76/95	264
	110/220	3	50	76/95	249	76/95	249
	110/220	1	50	73/73	332	73/73	332
	220/380	3	50	76/95	144	76/95	144
230/400	3	50	76/95	137	76/95	137	
240/416	3	50	76/95	132	76/95	132	
4T13X	120/240	1	60	100/100	417	100/100	417
	110/220	1	50	74/74	336	74/74	336

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. *Prime Power Ratings:* 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 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 LP gas ratings for both the primary and secondary fuels.

Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Permanent-Magnet
Leads: quantity, type	
4RX	12, Reconnectable
4TX	4, 110-120/220-240 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	Controller Dependent
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 4R9X (12 lead)	385 (60 Hz), 296 (50 Hz)
480 V, 400 V 4R12X (12 lead)	448 (60 Hz), 355 (50 Hz)
240 V, 220 V 4T13X (4 lead)	440 (60 Hz), 396 (50 Hz)

- 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.
- Windings are vacuum-impregnated with epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.

Application Data

Engine

Engine Specifications	60 Hz	50 Hz
Manufacturer	General Motors	
Engine: model, type	Industrial Powertrain Vortec 5.7 L, 4-Cycle Turbocharged	
Cylinder arrangement	V-8	
Displacement, L (cu. in.)	5.7 (350)	
Bore and stroke, mm (in.)	101.6 x 88.4 (4.00 x 3.48)	
Compression ratio	9.1:1	
Piston speed, m/min. (ft./min.)	318 (1044)	265 (870)
Main bearings: quantity, type	5, M400 Copper Lead	
Rated rpm	1800	1500
Max. power at rated rpm, kW (HP)	115 (155)	99 (133)
Cylinder head material	Cast Iron	
Piston type and material	High Silicon Aluminum	
Crankshaft material	Nodular Iron	
Valve (exhaust) material	Forged Steel	
Governor type	Electronic	
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 manifold type	Dry	
Exhaust flow at rated kW, m ³ /min. (cfm)	24.8 (876)	18.4 (651)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	677 (1250)	
Maximum allowable back pressure, kPa (in. Hg)	10.2 (3.0)	
Exhaust outlet size at engine hookup, mm (in.)	Flanged Outlet at Catalyst see ADV drawing	

Engine Electrical

Engine Electrical System	60 Hz	50 Hz
Ignition system	Individual Coil Near Plug Ignition	
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	Natural Gas, LP Gas, or Dual Fuel	
Fuel supply line inlet	1 1/4 NPTF	
Natural gas fuel supply pressure, kPa (in. H ₂ O)	1.74-2.74 (7-11)	
LPG vapor withdrawal fuel supply pressure, kPa (in. H ₂ O)	1.24-2.74 (5-11)	
Dual fuel engine, LPG vapor withdrawal fuel supply pressure, kPa (in. H ₂ 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 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.

Application Data

Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, L (qt.) ‡	4.7 (5.0)	
Oil pan capacity with filter, L (qt.) ‡	6.2 (6.5)	
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.)	6.8 (1.8)	
Radiator system capacity, including engine, L (gal.)	22.5 (6.0)	
Engine jacket water flow, Lpm (gpm)	144 (38)	121 (32)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	72 (4100)	69 (3930)
Heat rejected to charge cooling air at rated kW, kW (Btu/min.)	10.5 (600)	7.4 (420)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	660 (26)	
Fan, kWm (HP)	10.4 (14)	6.0 (8)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)	

* Enclosure with enclosed silencer reduces ambient temperature capability by 10°C (18°F).

Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m ³ /min. (scfm) ‡	198 (7000)	153 (5400)
Combustion air, m ³ /min. (cfm)	8.4 (298)	6.1 (217)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	57.4 (3265)	44.4 (2530)
Alternator, kW (Btu/min.)	13.7 (780)	12.0 (680)
† Air density = 1.20 kg/m ³ (0.075 lbm/ft ³)		

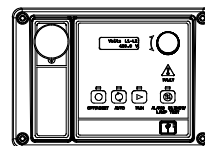
Fuel Consumption ‡	60 Hz	50 Hz
Natural Gas, m³/hr. (cfh) at % load	Standby Ratings	
100%	39.9(1389)	34.2(1206)
75%	32.1(1134)	27.8 (982)
50%	24.9 (879)	21.5 (758)
25%	17.7 (624)	15.1 (534)
0%	10.4 (369)	8.8 (310)

LP Gas, m ³ /hr. (cfh) at % load	60 Hz	50 Hz
LP Gas, m³/hr. (cfh) at % load	Standby Ratings	
100%	15.2 (538)	13.2 (466)
75%	12.3 (436)	10.7 (377)
50%	9.5 (334)	8.1 (287)
25%	6.6 (232)	5.6 (198)
0%	3.7 (130)	3.1 (108)

‡ Nominal fuel rating: Natural gas, 37 MJ/m³ (1000 Btu/ft.³)
LP vapor, 93 MJ/m³ (2500 Btu/ft.³)

LP vapor conversion factors:
8.58 ft.³ = 1 lb.
0.535 m³ = 1 kg.
36.39 ft.³ = 1 gal.

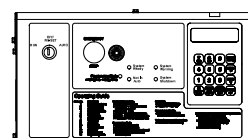
Controllers



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



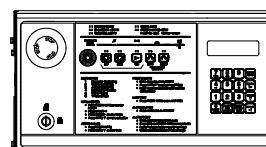
Decision-Maker® 550 Controller

Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities.

- Digital display and keypad provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or modem configuration
- Controller supports Modbus® protocol
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-46 for additional controller features and accessories.

Modbus® is a registered trademark of Schneider Electric.



Decision-Maker® 6000 Paralleling Controller

Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities for paralleling multiple generator sets.

- Paralleling capability with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
 - Digital display and keypad provide easy local data access
 - Measurements are selectable in metric or English units
 - Remote communication thru a PC via network or modem configuration
 - Controller supports Modbus® protocol
 - Integrated voltage regulator with ±0.25% regulation
 - Built-in alternator thermal overload protection
 - NFPA 110 Level 1 capability
- Refer to G6-107 for additional controller features and accessories.

Standard Features

- Alternator Protection
- Battery Rack and Cables
- Customer Connection
(Standard with Decision-Maker® 6000 controller only)
- 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

- CSA Certified
- UL 2200 Listing

Enclosed Unit

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

Open Unit

- Exhaust Silencer, Critical (kit: PA-324470)
- 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)
- Gas Filter
- Secondary Gas Solenoid Valve

Controller

- Common Fault Relay
- Communication Products and PC Software
- Customer Connection (Decision-Maker® 550 controller only)
- Dry Contact (isolated alarm)
(Decision-Maker® 550 and 6000 controllers only)
- Two Input/Five Output Module (APM402 controller only)
- Remote Annunciator Panel
- Remote Audiovisual Alarm Panel
(Decision-Maker® 550 and 6000 controllers only)
- Remote Emergency Stop
- Run Relay
- Manual Speed Adjust
(Decision-Maker® 550 and APM402 controllers only)

Cooling System

- Block Heater, 1500 W, 110-120 V
- Block Heater, 1500 W, 190-240 V
Recommended for ambient temperatures below 10°C (50°F)

Electrical System

- Alternator Strip Heater
- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater
- Line Circuit Breaker (NEMA1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)

Miscellaneous

- Air Cleaner Restrictor Indicator
- Engine Fluids Added
- Rated Power Factor Testing
- Rodent Guards

Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

Warranty

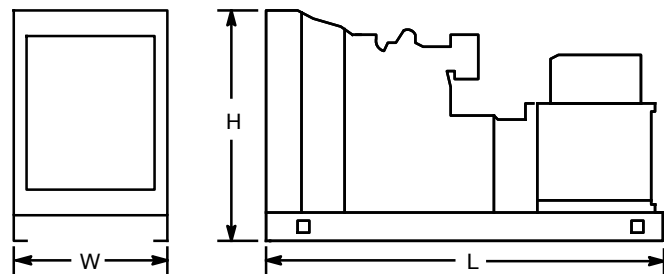
- 2-Year Basic Limited Warranty
- 5-Year Basic Limited Warranty
- 5-Year Comprehensive Limited Warranty

Other Options

- _____
- _____
- _____
- _____
- _____
- _____
- _____

Dimensions and Weights

Overall Size, L x W x H, mm (in.) :
 2800 x 1120 x 1380 (110.2 x 44.1 x 54.3)
 Weight (radiator model), wet, kg (lb.): 1403 (3094)



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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