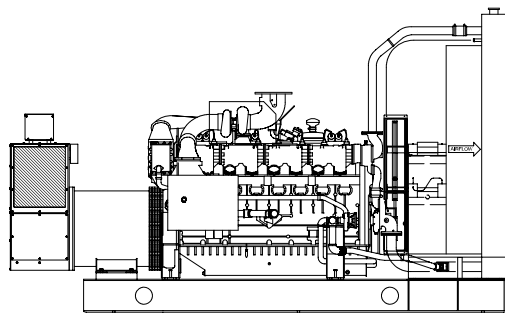




**Ratings Range**

	Lean-Burn GLD Engine		Rich-Burn GSID Engine	
	60 Hz	50 Hz	60 Hz	50 Hz
<b>Standby: kW</b>	405-410	336-340	400	328-332
<b>kVA</b>	506-513	420-425	500	410-415
<b>Prime: kW</b>	355-390	272-320	345-350	272-292
<b>kVA</b>	444-488	340-400	431-438	340-365



**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 complies with ISO 8528-5, Class G4, requirements for transient performance. \*
- A one-year limited warranty covers all systems and components. Two-, five-, and ten-year extended warranties are also available.
- Alternator features:
  - The brushless, rotating-field alternator has broadrange reconnectability.
  - The pilot-excited, permanent-magnet (PM) alternator provides superior short-circuit capability.
- Other features:
  - The low coolant level shutdown prevents overheating (standard on radiator models only).
  - The generator set is direct-mounted to the skid.
  - An electronic, isochronous governor delivers precise frequency regulation.
  - Electronic engine controls manage the engine.
  - Lean-burn natural gas technology provides maximum power and fuel efficiency.
  - Rich-burn natural gas technology reduces harmful exhaust emissions when used with a catalytic converter.

**Generator Set Ratings**

Alternator Voltage	Ph	Hz	Lean-Burn GLD Engine			Rich-Burn GSID Engine			
			130° C Rise	105° C Rise	80° C Rise	130° C Rise	105° C Rise	80° C Rise	
			Standby	Prime	Prime	Standby	Prime	Prime	
120/208	3	60	405/506	385/481	385/481	400/500	345/431	345/431	
127/220	3	60	405/506	385/481	385/481	400/500	345/431	345/431	
139/240	3	60	405/506	385/481	380/475	400/500	345/431	345/431	
240/416	3	60	405/506	385/481	385/481	400/500	345/431	345/431	
277/480	3	60	405/506	385/481	380/475	400/500	345/431	345/431	
5M4024	110/190	3	50	336/420	320/400	320/400	328/410	288/360	288/360
	115/200	3	50	336/420	320/400	304/380	328/410	288/360	288/360
	120/208	3	50	336/420	320/400	272/340	328/410	288/360	272/340
	220/380	3	50	336/420	320/400	320/400	328/410	288/360	288/360
	230/400	3	50	336/420	320/400	304/380	328/410	288/360	288/360
	240/416	3	50	336/420	320/400	272/340	328/410	288/360	272/340
	120/208	3	60	410/513	390/488	390/488	400/500	350/438	350/438
	127/220	3	60	410/513	390/488	390/488	400/500	350/438	350/438
	139/240	3	60	410/513	390/488	390/488	400/500	350/438	350/438
	220/380	3	60	410/513	390/488	390/488	400/500	350/438	350/438
	240/416	3	60	410/513	390/488	390/488	400/500	350/438	350/438
	277/480	3	60	410/513	390/488	390/488	400/500	350/438	350/438
5M4028	110/190	3	50	340/425	320/400	320/400	332/415	292/365	292/365
	115/200	3	50	340/425	320/400	320/400	332/415	292/365	292/365
	120/208	3	50	340/425	320/400	320/400	332/415	292/365	292/365
	220/380	3	50	340/425	320/400	320/400	332/415	292/365	292/365
	230/400	3	50	340/425	320/400	320/400	332/415	292/365	292/365
	240/416	3	50	340/425	320/400	320/400	332/415	292/365	292/365
5M4160	220/380	3	60	405/506	385/481	355/444	400/500	345/431	345/431
5M4162	220/380	3	60	405/506	385/481	385/481	400/500	345/431	345/431
5M4270	347/600	3	60	405/506	385/441	385/481	400/500	345/431	345/431
5M4272	347/600	3	60	410/513	390/488	390/488	400/500	350/438	350/438

\* This generator set does not meet NFPA 110 requirements for the one-step load acceptance and the 10-second start sequence.

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. *Rich Burn:* A 10% overload capacity is available for one hour in twelve. *Lean Burn:* A 5% 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:* Deduct 1% for each 150 m (492 ft.) elevation above 500 m (1640 ft.). *Temperature:* Derate 2% for each 10°C (18°F) temperature above 38°C (100°F).

# Alternator Specifications

Specifications	Alternator
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Permanent-Magnet, Pilot Exciter
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H, Synthetic, Nonhygroscopic
Temperature rise	130°C, 150°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Rotor balancing	125% (60 Hz), 150% (50 Hz)
Voltage regulation, no-load to full-load (with <0.5% drift due to temp. variation)	3-phase, ±0.25%
Unbalanced load capability	100% of Rated Standby Current
Peak motor starting kVA:	(35% dip for voltages below)
480 V/380 V 5M4024 (10 lead)	1350 (60Hz), 880 (50Hz)
480 V/380 V 5M4028 (10 lead)	1800 (60Hz), 1250 (50Hz)
380 V 5M4160 (4 lead)	1175 (60Hz)
380 V 5M4162 (4 lead)	2100 (60Hz)
600 V 5M4270 (4 lead)	1250 (60Hz)
600 V 5M4272 (4 lead)	1750 (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 alternator field.
- Self-ventilated and dripproof construction.
- Superior voltage waveform from two-thirds pitch windings and skewed stator.
- Digital solid-state, volts-per-hertz voltage regulator with ±0.25% no-load to full-load regulation.
- Brushless alternator with brushless pilot exciter for excellent load response.

## Application Data

### Engine

Engine Specifications	60 Hz	50 Hz
Manufacturer	Waukesha Engine	
Engine model		
Lean-Burn GLD Engine	VGF H24GLD, 4-Cycle	
Rich-Burn GSID Engine	VGF H24GSID, 4-Cycle	
Engine type	Turbocharged, Intercooled	
Cylinder arrangement	8 Inline	
Displacement, L (cu. in.)	24 (1462)	
Bore and stroke, mm (in.)	152 x 165 (5.98 x 6.5)	
Compression ratio		
Lean-Burn GLD Engine	11:1	
Rich-Burn GSID Engine	8.7:1	
Piston speed, m/min. (ft./min.)	594 (1950)	495 (1625)
Main bearings: quantity, type	9, Half Shell	
Rated rpm	1800	1500
Max. power at rated rpm, kWm (BHP)		
Lean-Burn GLD Engine	460 (615)	385 (515)
Rich-Burn GSID Engine	435 (585)	365 (490)
Cylinder head material	Cast Iron	
Piston: type, material	Aluminum Alloy	
Crankshaft material	Forged Steel	
Valve material, intake/exhaust:	Hard-Faced Steel	
Governor: type, make/model	Electronic	
Frequency regulation, no-load to full-load	Isochronous	
Frequency regulation, steady state	±0.50%	
Frequency	Field-Convertible	
Air cleaner type, all models	Dry	

### Fuel

Fuel System	60 Hz	50 Hz
Fuel type	Natural Gas	
Fuel supply line inlet, mm (in.)	50.8 (2) NPT	
Natural gas fuel supply pressure, measured at the generator set fuel inlet after any fuel system equipment accessories, kPa (oz./in. <sup>2</sup> )	2-34 (4.6-80)	
Particulate filter requirement, mm (in.)	0.005 (0.0002)	

### Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)		
Lean-Burn GLD Engine	90 (3175)	72 (2523)
Rich-Burn GSID Engine	73 (2580)	58 (2053)
Exhaust temperature at rated kW, dry exhaust, °C (°F)		
Lean-Burn GLD Engine	450 (844)	432 (810)
Rich-Burn GSID Engine	602 (1116)	580 (1076)
Maximum allowable back pressure, kPa (in. Hg)	3.73 (1.1)	
Engine exhaust outlet size, mm (in.)	See ADV Drawing	

### Engine Electrical

Engine Electrical System	60 Hz	50 Hz
Ignition system	Electronic	
Battery charging, min.	Requires Float/Equalizer Battery Charger, 24 V, 10 A	
Starter motor rated voltage (DC)	24	
Battery, recommended cold cranking amps (CCA):		
Qty., CCA rating	2, 1000	
Battery voltage (DC)	12	

### Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, L (qt.)	—	
Oil pan capacity with filter, L (gal.)	106 (28)	
Oil filter: quantity, type	3, Full Flow Spin-On	
Oil cooler	Water-Cooled	
Oil requirements	SAE40 Allowable Sulfated Ash Content by Weight	
	0.5-1.0% (GLD)	
	0.35-0.5% (GSID)	

# Application Data

## Cooling

Radiator System	60 Hz	50 Hz
Ambient temperature, °C (°F)	38 (100)	
Engine jacket water capacity, L (gal.)	75 (20)	
Engine auxiliary water capacity, L (gal.)	23 (6)	
Radiator jacket water capacity, including engine, L (gal.)	223.7 (59.1)	
Radiator auxiliary water capacity, including engine, L (gal.)	105.6 (27.9)	
Minimum engine jacket water flow, Lpm (gpm)	492 (130)	380 (105)
Minimum engine auxiliary water flow, Lpm (gpm)	133 (35)	95 (25)
Heat rejected to cooling water at standby rated kW, wet exhaust, kW (Btu/min.)		
Lean-Burn GLD Engine	316 (17950)	267 (15200)
Rich-Burn GSID Engine	375 (21300)	304 (17800)
Heat rejected to auxiliary cooling water at standby rated kW, wet exhaust, kW (Btu/min.)		
Lean-Burn GLD Engine	118 (6730)	82 (4650)
Rich-Burn GSID Engine	96 (5460)	71 (4020)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	1829 (72)	
Fan, kWm (HP)	27 (36)	16 (21)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O)	0.125 (0.5)	

## Operation Requirements

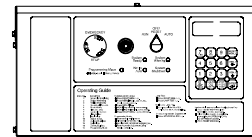
Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm)*	1750 (61700)	1460 (51400)
Combustion air, m <sup>3</sup> /min. (scfm)		
Lean-Burn GLD Engine	35 (1215)	28 (990)
Rich-Burn GSID Engine	23 (800)	18 (650)
Heat rejected to ambient air, kW (Btu/min.):		
Engine, Lean-Burn GLD	26 (1460)	21 (1220)
Engine, Rich-Burn GSID	36 (2050)	33 (1900)
Alternator	28 (1590)	23 (1310)

\* Air density = 1.20 kg/m<sup>3</sup> (0.075 lbm/ft<sup>3</sup>)

Fuel Consumption <sup>†</sup>	60 Hz	50 Hz
<b>Natural Gas, m<sup>3</sup>/hr. (cfh) at % load</b>	<b>Lean-Burn Standby Rating</b>	
100%	135 (4767)	109 (3862)
75%	106 (3737)	86 (3021)
50%	77 (2706)	62 (2181)
25%	48 (1676)	38 (1340)
<b>Natural Gas, m<sup>3</sup>/hr. (cfh) at % load</b>	<b>Lean-Burn Prime Rating</b>	
100%	129 (4566)	105 (3698)
75%	102 (3586)	82 (2899)
50%	74 (2606)	59 (2099)
25%	46 (1626)	37 (1299)
<b>Natural Gas, m<sup>3</sup>/hr. (cfh) at % load</b>	<b>Rich-Burn Standby Rating</b>	
100%	136 (4796)	111 (3910)
75%	108 (3797)	86 (3092)
50%	79 (2799)	64 (2273)
25%	51 (1800)	41 (1455)
<b>Natural Gas, m<sup>3</sup>/hr. (cfh) at % load</b>	<b>Rich-Burn Prime Rating</b>	
100%	126 (4433)	102 (3613)
75%	100 (3525)	81 (2869)
50%	74 (2617)	60 (2125)
25%	48 (1709)	39 (1381)

<sup>†</sup> Fuel energy content = 35.38 MJ/m<sup>3</sup> (900 Btu/scft) saturated lower heating value.

## Controller



### Decision-Maker™ 550 Controller

Audiovisual annunciation.

Programmable microprocessor logic and digital display features.

Alternator safeguard circuit protection.

24-volt engine electrical system capability.

Remote start, remote annunciation, and remote communication options.

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

## Standard Features

- Air Cleaner, Heavy Duty
- Air Cleaner Restriction Indicator
- Alternator Protection
- Oil Drain Extension
- Operation and Installation Literature
- Radiator Duct Flange

## Available Accessories

### Enclosed Unit

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

### Open Unit

- Exhaust Silencer, Critical, Lean-Burn GLD Engine:  
60 Hz kit: PA-354894; 50 Hz kit: PA-354880
- Exhaust Silencer, Critical, Rich-Burn GSID Engine:  
Kit: PA-354880
- Exhaust Silencer, Residential, Kit: PA-354882
- Flexible Exhaust Connector, Stainless Steel

### Cooling System

- Block Heater
- Remote Radiator Cooling

### Fuel System

- Air/Fuel Ratio Controller
- Gas Regulator
- Natural Gas Filter
- Gas Solenoid Valve

### Electrical System

- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater
- Battery Rack and Cables

### Engine and Alternator

- Bus Bar Kits
- CSA Certification
- Alternator Strip Heater
- Line Circuit Breaker (NEMA1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)
- Optional Alternators
- Pre-Lube Pumps
- Pre-Lube Pumps with Heaters
- Rated Power Factor Testing
- Remote Voltage Adjust Control
- Spring Isolators

## Maintenance and Literature

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

## Controller

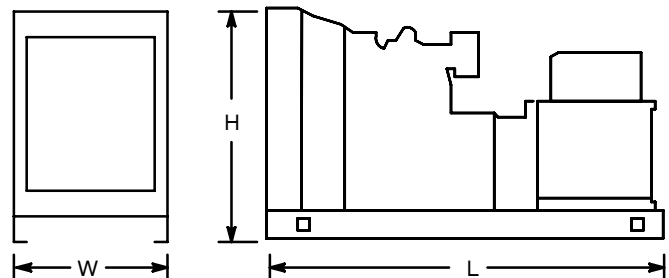
- Common Failure Relay Kit
- Communications Products and PC Software
- Customer Connection Kit
- Dry Contact Kit (isolated alarm)
- Remote Annunciator Panel
- Remote Audiovisual Alarm Panel
- Remote Emergency Stop Kit
- Remote Mounting Cable
- Run Relay Kit

## Miscellaneous Accessories

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

## Dimensions and Weights

Overall Size, L x W x H, mm (in.): 4606 x 2232 x 2819  
 (181.35 x 87.88 x 110.97)  
 Weight (radiator model), wet, kg (lb.): 7893 (17365)



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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