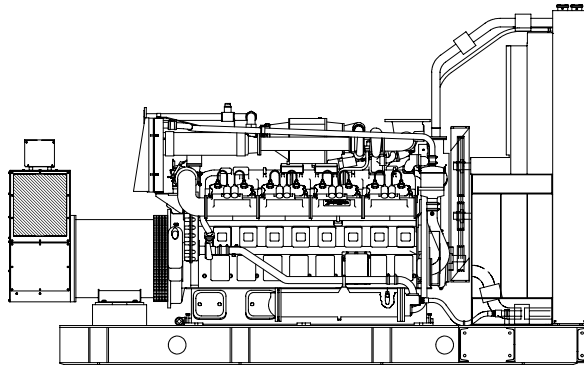




Ratings Range

	Lean-Burn GLD Engine		Rich-Burn GSID Engine	
	60 Hz	50 Hz	60 Hz	50 Hz
Standby: kW	785-840	640-700	785-800	640-664
kVA	981-1050	800-875	981-1000	800-830
Prime: kW	630-800	480-668	630-725	480-600
kVA	788-1000	600-835	788-906	600-750



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 Standby	105°C Rise Prime	80°C Rise Prime	130°C Rise Standby	105°C Rise Prime	80°C Rise Prime	
5M4036	240/416	3	60	785/981	725/906	630/788	785/981	710/888	630/788
	277/480	3	60	825/1031	795/994	670/838	800/1000	720/900	670/838
	220/380	3	50	664/830	612/765	540/675	660/825	600/750	540/675
	230/400	3	50	688/860	632/790	532/665	660/825	600/750	532/665
5M4038	240/416	3	60	835/1044	770/963	675/844	800/1000	715/894	675/844
	277/480	3	60	840/1050	800/1000	720/900	800/1000	720/900	720/900
	220/380	3	50	700/875	664/830	584/730	660/825	600/750	584/730
	230/400	3	50	700/875	668/835	568/710	660/825	600/750	568/710
5M4044	240/416	3	50	700/875	660/825	532/665	664/830	600/750	532/665
	220/380	3	60	830/1038	800/1000	715/894	800/1000	725/906	720/900
	240/416	3	60	840/1050	800/1000	760/950	800/1000	725/906	725/906
	277/480	3	60	840/1050	800/1000	800/1000	800/1000	725/906	720/900
5M4166	220/380	3	50	700/875	668/835	644/805	660/825	600/750	600/750
	230/400	3	50	700/875	668/835	628/785	660/825	600/750	600/750
	240/416	3	50	700/875	668/835	612/765	664/830	600/750	600/750
5M4168	220/380	3	60	830/1038	795/994	670/838	800/1000	720/900	670/838
5M4168	220/380	3	60	840/1050	800/1000	715/894	800/1000	725/906	715/894
5M4278	347/600	3	60	825/1031	795/994	665/831	800/1000	720/900	665/831
5M4280	347/600	3	60	840/1050	800/1000	700/875	800/1000	725/906	700/875

* 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 5M4036 (10 lead)	3150 (60Hz), 2100 (50Hz)
480 V/380 V 5M4038 (4 lead)	3050 (60Hz), 2000 (50Hz)
480 V/380 V 5M4044 (4 bus bar)	3900 (60Hz), 2650 (50Hz)
380 V 5M4166 (4 lead)	2750 (60Hz)
380 V 5M4168 (4 lead)	2700 (60Hz)
600 V 5M4278 (4 lead)	4000 (60Hz)
600 V 5M4280 (4 lead)	3450 (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 P48GLD, 4-Cycle	
Rich-Burn GSID Engine	VGF P48GSID, 4-Cycle	
Engine type	Turbocharged, Intercooled	
Cylinder arrangement	16 V	
Displacement, L (cu. in.)	48 (2924)	
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	920 (1230)	765 (1025)
Rich-Burn GSID Engine	875 (1175)	730 (975)
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) ANSI 125 lb. Flange	
Natural gas fuel supply pressure, measured at the generator set fuel inlet after any fuel system equipment accessories, kPa (oz./in. ²)	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 ³ /min. (cfm)		
Lean-Burn GLD Engine	179 (6331)	141 (4988)
Rich-Burn GSID Engine	144 (5065)	115 (4051)
Exhaust temperature at rated kW, dry exhaust, °C (°F)		
Lean-Burn GLD Engine	450 (841)	426 (798)
Rich-Burn GSID Engine	600 (1111)	578 (1072)
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, 1150	
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.)	216 (57)	
Oil filter: quantity, type	2, Cartridge	
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.)	219 (58)	
Engine auxiliary water capacity, L (gal.)	57 (15)	
Radiator jacket water capacity, including engine, L (gal.)	380 (100)	
Radiator auxiliary water capacity, including engine, L (gal.)	137 (36)	
Minimum engine jacket water flow, Lpm (gpm)		
Lean-Burn GLD Engine	1060 (280)	875 (231)
Rich-Burn GSID Engine	1277 (337)	1054 (278)
Minimum engine auxiliary water flow, Lpm (gpm)	329 (87)	269 (71)
Heat rejected to cooling water at standby rated kW, wet exhaust, kW (Btu/min.)		
Lean-Burn GLD Engine	632 (35920)	542 (30830)
Rich-Burn GSID Engine	761 (43250)	636 (36170)
Heat rejected to auxiliary cooling water at standby rated kW, wet exhaust, kW (Btu/min.)		
Lean-Burn GLD Engine	243 (13800)	173 (9800)
Rich-Burn GSID Engine	174 (9870)	135 (7670)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	2134 (84)	
Fan, kWm (HP)	40 (54)	23 (31)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)	

Operation Requirements

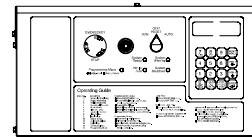
Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m ³ /min. (scfm)*	2425 (85600)	2020 (71400)
Combustion air, m ³ /min. (scfm)		
Lean-Burn GLD Engine	69 (2420)	56 (1975)
Rich-Burn GSID Engine	45 (1575)	36 (1285)
Heat rejected to ambient air, kW (Btu/min.):		
Lean-Burn GLD Engine	42 (2400)	39 (2230)
Rich-Burn GSID Engine	48 (2750)	45 (2580)
Alternator	56 (3180)	46 (2620)

* Air density = 1.20 kg/m³ (0.075 lbm/ft³)

Fuel Consumption [†]	60 Hz	50 Hz
Natural Gas, m³/hr. (cfh) at % load	Lean-Burn Standby Rating	
100%	269 (9509)	218 (7710)
75%	211 (7447)	171 (6031)
50%	153 (5384)	123 (5343)
25%	94 (3322)	76 (2675)
Natural Gas, m³/hr. (cfh) at % load	Lean-Burn Prime Rating	
100%	258 (9108)	209 (7383)
75%	202 (7146)	164 (5787)
50%	147 (5184)	119 (4190)
25%	91 (3221)	73 (2593)
Natural Gas, m³/hr. (cfh) at % load	Rich-Burn Standby Rating	
100%	268 (9455)	219 (7737)
75%	211 (7452)	172 (6077)
50%	154 (5449)	125 (4416)
25%	98 (3447)	78 (2756)
Natural Gas, m³/hr. (cfh) at % load	Rich-Burn Prime Rating	
100%	247 (8727)	202 (7133)
75%	196 (6906)	159 (5624)
50%	144 (5085)	117 (4115)
25%	92 (3264)	74 (2605)

[†] Fuel energy content = 35.38 MJ/m³ (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, Kit: PA-354898
- Exhaust Silencer, Residential, Lean-Burn GLD Engine: Kit: PA-354899
- Exhaust Silencer, Residential, Rich-Burn GSID Engine: 60 Hz kit: PA-354899; 50 Hz kit: PA-354892
- 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

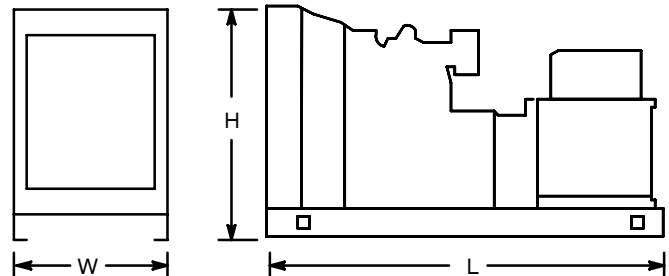
Miscellaneous Accessories

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

Dimensions and Weights

Overall Size, L x W x H, mm (in.): 4953 x 2645 x 3228
 (195.00 x 104.13 x 127.09)

Weight (radiator model), wet, kg (lb.): 13018 (28700)



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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