



**Ratings Range**

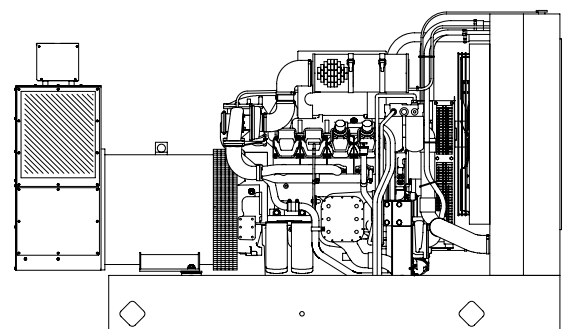
		<b>60 Hz</b>
Standby:	<b>kW</b>	440-515
	<b>kVA</b>	550-644

**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 complies with ISO 8528-5, Class G3, requirements for transient performance.
- The generator set accepts rated load in one step.
- A one-year limited warranty covers all systems and components. Two-, five-, and ten-year extended warranties are also available.
- Alternator features:
  - The pilot-excited, permanent-magnet (PM) alternator provides superior short-circuit capability.
  - The brushless, rotating-field alternator has broadrange reconnectability.
- Other features:
  - Controllers are available for all applications. See controller features inside.
  - The low coolant level shutdown prevents overheating (standard on radiator models only).
  - Integral vibration isolation eliminates the need for under-unit vibration spring isolators.
  - An electronic, isochronous governor delivers precise frequency regulation.
  - Electronic engine controls and a generator set microprocessor controller combine to deliver one of the most advanced control systems in today's market.

**Generator Set Ratings**

Alternator	Voltage	Ph	Hz	150°C Rise Standby Rating		130°C Rise Standby Rating	
				kW/kVA	Amps	kW/kVA	Amps
5M4024	120/208	3	60	450/563	1561	440/550	1527
	127/220	3	60	465/581	1525	465/581	1525
	139/240	3	60	500/625	1504	475/594	1428
	240/416	3	60	450/563	781	440/550	781
	277/480	3	60	500/625	752	475/594	714
5M4027	120/208	3	60	500/625	1735	475/594	1648
	127/220	3	60	505/631	1657	500/625	1640
	139/240	3	60	505/631	1519	505/631	1519
	240/416	3	60	500/625	867	475/594	824
	277/480	3	60	505/631	759	505/631	759
5M4028	120/208	3	60	510/638	1770	510/638	1770
	127/220	3	60	510/638	1673	510/638	1673
	139/240	3	60	510/638	1534	510/638	1534
	220/380	3	60	470/588	893	470/588	893
	240/416	3	60	510/638	885	510/638	885
5M4030	277/480	3	60	510/638	767	510/638	767
	120/208	3	60	510/638	1770	510/638	1770
	127/220	3	60	510/638	1673	510/638	1673
	139/240	3	60	510/638	1534	510/638	1534
	220/380	3	60	485/606	921	485/606	921
5M4162	240/416	3	60	510/638	885	510/638	885
	277/480	3	60	510/638	767	510/638	767
	220/380	3	60	505/631	959	500/625	950
	220/380	3	60	515/644	959	515/644	959
	347/600	3	60	500/625	601	500/625	601
5M4272	347/600	3	60	515/644	619	515/644	619



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. 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 1.5% per 305 m (1000 ft.) elevation above 1006 m (3300 ft.). Maximum altitude capability is 2288 m (7500 ft.) on 60 Hz and 3109 m (10200 ft.) on 50 Hz. *Temperature:* Derate 0.4% per 5.5°C (10°F) temperature above 25°C (77°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%
Voltage regulation, no-load to full-load (with < 0.5% drift due to temp. variation)	3-Phase Sensing, ±0.25%
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, 380 V 5M4024 (10 lead)	1350 (60 Hz)
480 V, 380 V 5M4027 (12 lead)	1550 (60 Hz)
480 V, 380 V 5M4028 (10 lead)	1800 (60 Hz)
480 V, 380 V 5M4030 (10 lead)	1775 (60 Hz)
380 V 5M4162 (4 lead)	2100 (60 Hz)
380 V 5M4164 (4 lead)	2250 (60 Hz)
600 V 5M4270 (4 lead)	1250 (60 Hz)
600 V 5M4272 (4 lead)	1750 (60 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.
- 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	
Manufacturer	Detroit Diesel/MTU
Engine: model	8V2000 G81 R083-7K36
Engine: type	4-Cycle, Turbocharged, Intercooled
Cylinder arrangement	8-V
Displacement, L (cu. in.)	15.9 (972)
Bore and stroke, mm (in.)	130 x 150 (5.12 x 5.91)
Compression ratio	14.5:1
Piston speed, m/min. (ft./min.)	540 (1772)
Main bearings: quantity, type	5, Precision Half Shells
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	571 (765)
Cylinder head material	Cast Iron
Crankshaft material	Forged Steel
Valve (exhaust) material	Austenitic Steel
Governor: type, make/model	DDEC Electronic Control
Frequency regulation, no-load to-full load	Isochronous
Frequency regulation, steady state	±0.25%
Frequency	Fixed
Air cleaner type, all models	Dry

### Exhaust

Exhaust System	
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)	116 (4080)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	527 (980)
Maximum allowable back pressure, kPa (in. Hg)	10.2 (3.0)
Exh. outlet size at eng. hookup, mm (in.)	See ADV drawing

### Engine Electrical

Engine Electrical System		
Battery charging alternator:		
Ground (negative/positive)		Negative
Volts (DC)		24
Ampere rating		70
Starter motor rated voltage (DC)		24
Battery, recommended cold cranking amps (CCA):		
Qty., CCA rating each above 0°C (32°F)		Two, 1000
Qty., CCA rating each below 0°C (32°F)		Four, 700
Battery voltage (DC)		12

### Fuel

Fuel System	
Fuel supply line, min. ID, mm (in.)	16 (0.63)
Fuel return line, min. ID, mm (in.)	16 (0.63)
Max. lift, engine-driven fuel pump, m (ft.)	2.1 (6.8)
Max. fuel flow, Lph (gph)	704 (186)
Max. fuel pump restriction with new filter, kPa (in. Hg)	20 (6)
Max. fuel pump restriction with used filter, kPa (in. Hg)	41 (12)
Fuel filter: quantity, type	1, Primary/1, Secondary
Recommended fuel	#2 Diesel

### Lubrication

Lubricating System	
Type	Full Pressure
Oil pan capacity, L (qt.)	46.4 (49)
Oil pan capacity with filter, L (qt.)	53.9 (57)
Oil filter: quantity, type	2, Cartridge
Oil cooler	Water-Cooled

# Application Data

## Cooling

Radiator System	
Ambient temperature, °C (°F)	40 (104)
Engine water capacity, L (gal.)	44 (11.6)
Radiator system capacity, including engine, L (gal.)	159 (42)
Engine jacket water flow, Lpm (gpm)	708 (187)
Charge cooler water flow, Lpm (gpm)	299 (79)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	203 (11535)
Heat rejected to charge cooling water at rated kW, dry exhaust, kW (Btu/min.)	130 (7385)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	991 (39)
Fan, kWm (HP)	17 (23)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O)	0.125 (0.5)

Radiator System	
Ambient temperature, °C (°F)	50 (122)
Engine jacket water capacity, L (gal.)	44 (11.6)
Radiator system capacity, including engine, L (gal.)	163 (43)
Engine jacket water flow, Lpm (gpm)	708 (187)
Charge cooler water flow, Lpm (gpm)	299 (79)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	203 (11535)
Heat rejected to charge cooling water at rated kW, dry exhaust, kW (Btu/min.)	130 (7385)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	1041 (41)
Fan, kWm (HP)	24 (32)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O)	0.125 (0.5)

Remote Radiator System*	
Exhaust manifold type	Dry
Connection sizes:	
Water inlet, mm (in.)	102 (4)
Water outlet, mm (in.)	77 (3)
Intercooler inlet/outlet, mm (in.)	44.5 (1.75)
Static head allowable above engine, kPa (ft. H <sub>2</sub> O)	149 (50)

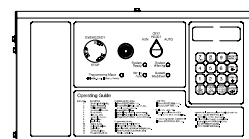
\* Contact your local distributor for cooling system options and specifications based on your specific requirements.

## Operation Requirements

Air Requirements	
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm) <sup>†</sup>	547 (19300) @ 40°C 713 (25150) @ 50°C
Cooling air required for generator set when equipped with city water cooling or remote radiator, based on 14°C (25°F) rise, m <sup>3</sup> /min. (scfm) <sup>†</sup>	383 (13500)
Combustion air, m <sup>3</sup> /min. (cfm)	41 (1460)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	60 (3400)
Alternator, kW (Btu/min.)	47 (2660)
<sup>†</sup> Air density = 1.20 kg/m <sup>3</sup> (0.075 lbm/ft <sup>3</sup> )	

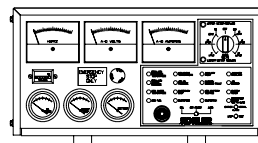
Fuel Consumption	
Diesel, Lph (gph) at % load	Standby Rating
100%	142.6 (37.7)
75%	101.6 (26.8)
50%	68.4 (18.1)
25%	38.1 (10.1)

## Controllers



### Decision-Maker™ 550 Controller

Audiovisual annunciation with NFPA 110 Level 1 capability. Programmable microprocessor logic and digital display features. Alternator safeguard circuit protection. 12- or 24-volt engine electrical system capability. Remote start, remote annunciation, and remote communication options. Refer to G6-46 for additional controller features and accessories.



### Decision-Maker™ 3+, 16-Light Controller

Audiovisual 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. Refer to G6-30 for additional controller features and accessories.

## Additional Standard Features

- Alternator Protection (standard with 550 controller)
- Hand Prime Pump
- Oil Drain Extension
- Operation and Installation Literature

## Available Accessories

### Open Unit

- Exhaust Silencer, Critical  
Kits: PA-354880, PA-365337, PA-365348, PA-365353
- Exhaust Silencer, Hospital  
Kits: PA-354905, PA-365343, PA-365349, PA-365354
- Exhaust Silencer, Industrial  
Kits: PA-354904, PA-365340, PA-343617, PA-365350
- Exhaust Silencer, Residential  
Kits: PA-3549882, PA-365334, PA-365347, PA-365352
- Flexible Exhaust Connector, Stainless Steel
- Sound Enclosure (with roof-mounted hospital silencer)
- Weather Enclosure (with roof-mounted critical silencer)

### Cooling System

- Block Heater
- High Ambient Radiator
- Radiator Duct Flange
- Remote Radiator Cooling

### Fuel System

- Flexible Fuel Lines
- Fuel Filter
- Fuel Pressure Gauge
- Subbase Fuel Tank with Day Tank

### Electrical System

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

### Engine and Alternator

- Air Cleaner, Heavy Duty
- Air Cleaner Restriction Indicator
- Alternator Strip Heater
- Bus Bar Kits (standard on 7M alternators, 380-600 volt only)
- Line Circuit Breaker (NEMA type 1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA type 1 enclosure)
- NFPA 110 Literature
- Optional Alternators
- Rated Power Factor Testing
- Safeguard Breaker (not available with 550 controller)

### Paralleling System

- Load-Sharing Module
- Reactive Droop Compensator
- Remote Speed Adjust Control/Electronic Governor (550 controller only)
- Voltage Adjust Control
- Voltage Regulator Relocation Kit

## Maintenance

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

## Controller

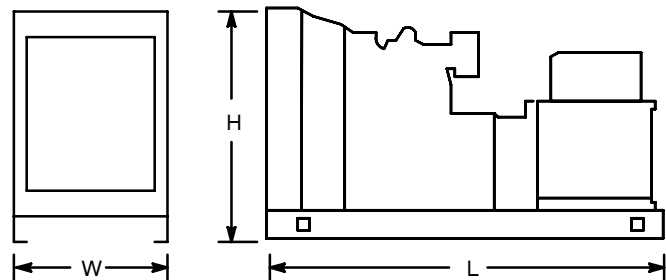
- Common Failure Relay Kit
- Communication Products and PC Software (550 controller only)
- Customer Connection Kit
- Dry Contact Kit (isolated alarm)
- Engine Prealarm Sender Kit
- Prime Power Switch (550 controller only)
- Remote Annunciator Panel
- Remote Audiovisual Alarm Panel
- Remote Emergency Stop Kit
- Remote Mounting Cable
- Run Relay Kit

## Miscellaneous Accessories

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

## Dimensions and Weights

Overall Size, max., L x W x H, mm (in.):  
 40°C (105°F): 3647 x 1270 x 2103 (143.58 x 50.00 x 82.78)  
 50°C (122°F): 3647 x 1270 x 2144 (137.09 x 50.00 x 84.41)  
 Weight, radiator model, max. wet, kg (lb.): 4000 (8820)



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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