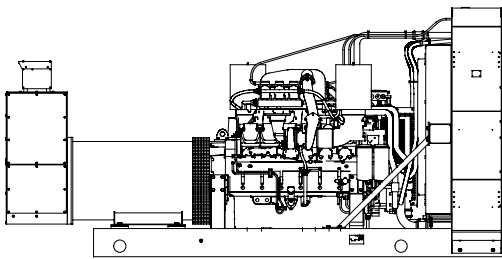




### Ratings Range

		60 Hz	50 Hz
Standby:	kW	670-750	568-616
	kVA	838-938	710-770
Prime:	kW	610-680	520-560
	kVA	763-850	650-700



### 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.
- At 60 Hz, 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.
- The generator set complies with ISO 8528-5, Class G3, 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 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
  - 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		125°C Rise Prime Rating		105°C Rise Prime Rating		
				kW/kVA	Amps	kW/kVA	Amps	kW/kVA	Amps	kW/kVA	Amps	
5M4032	120/208	3	60	725/906	2515	700/875	2429	680/850	2359	650/813	2255	
	127/220	3	60	750/938	2460	730/913	2395	680/850	2231	680/850	2231	
	139/240	3	60	750/938	2255	700/875	2105	680/850	2045	680/850	2045	
	240/416	3	60	725/906	1258	700/875	1214	680/850	1180	650/813	1128	
	277/480	3	60	750/938	1128	700/875	1052	680/850	1022	680/850	1022	
	110/190	3	50	600/750	2279	600/750	2279	544/680	2066	544/680	2066	
	115/200	3	50	600/750	2165	588/735	2122	544/680	1963	544/680	1963	
	120/208	3	50	588/735	2040	568/710	1971	544/680	1887	520/650	1804	
	220/380	3	50	600/750	1140	600/750	1140	544/680	1033	544/680	1033	
	230/400	3	50	600/750	1083	588/735	1061	544/680	981	544/680	981	
5M4034	240/416	3	50	588/735	1020	568/710	985	536/670	930	520/650	902	
	120/208	3	60	725/906	2515	725/906	2515	680/850	2359	680/850	2359	
	127/220	3	60	750/938	2460	750/938	2460	680/850	2231	680/850	2231	
	139/240	3	60	750/938	2255	750/938	2255	680/850	2045	680/850	2045	
	240/416	3	60	725/906	1258	725/906	1258	680/850	1180	680/850	1180	
	277/480	3	60	750/938	1128	750/938	1128	680/850	1022	680/850	1022	
	110/190	3	50	608/760	2309	608/760	2309	552/690	2097	552/690	2097	
	115/200	3	50	608/760	2194	608/760	2194	552/690	1992	552/690	1992	
	120/208	3	50	600/750	2082	584/730	2026	552/690	1915	528/660	1832	
	220/380	3	50	608/760	1155	608/760	1155	552/690	1048	552/690	1048	
5M4036	230/400	3	50	608/760	1097	608/760	1097	552/690	996	552/690	996	
	240/416	3	50	608/760	1055	584/730	1013	552/690	958	528/660	916	
	120/208	3	60	750/938	2602	750/938	2602	680/850	2359	680/850	2359	
	127/220	3	60	750/938	2460	750/938	2460	680/850	2231	680/850	2231	
	139/240	3	60	750/938	2255	750/938	2255	680/850	2045	680/850	2045	
	220/380	3	60	670/838	1272	670/838	1272	610/763	1158	610/763	1158	
	240/416	3	60	750/938	1301	750/938	1301	680/850	1180	680/850	1180	
	277/480	3	60	750/938	1128	750/938	1128	680/850	1022	680/850	1022	
	110/190	3	50	608/760	2309	608/760	2309	552/690	2097	552/690	2097	
	115/200	3	50	608/760	2194	608/760	2194	552/690	1992	552/690	1992	
5M4038	120/208	3	50	608/760	2110	608/760	2110	552/690	1915	552/690	1915	
	220/380	3	50	608/760	1155	608/760	1155	552/690	1048	552/690	1048	
	230/400	3	50	608/760	1097	608/760	1097	552/690	996	552/690	996	
	240/416	3	50	608/760	1055	608/760	1055	552/690	958	552/690	958	
	220/380	3	50	616/770	1170	616/770	1170	560/700	1064	560/700	1064	
	230/400	3	50	616/770	1111	616/770	1111	560/700	1010	560/700	1010	
	240/416	3	50	616/770	1069	616/770	1069	560/700	972	560/700	972	
	5M4166	220/380	3	60	750/938	1424	750/938	1424	680/850	1291	680/850	1291
	5M4276	347/600	3	60	750/938	902	725/906	872	680/850	818	680/850	818
	5M4278	347/600	3	60	750/938	902	750/938	902	680/850	818	680/850	818

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 1.0% per 100 m (328 ft.) elevation above 400 m (1312 ft.). *Temperature:* Derate 3.0% per 5.0°C (9°F) temperature above 40°C (104°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 Sensing, ±0.25%
One-step load acceptance at 60 Hz	100% of Rating
Unbalanced load capability	100% of Rated Standby Current
Peak motor starting kVA:	(35% dip for voltages below)
480 V, 416 V 5M4032 (10 lead)	2200 (60 Hz), 1650 (50 Hz)
480 V, 416 V 5M4034 (10 lead)	2600 (60 Hz), 2000 (50 Hz)
480 V, 416 V 5M4036 (10 lead)	3200 (60 Hz), 2400 (50 Hz)
416 V 5M4038 (4 lead)	2350 (50 Hz)
380 V 5M4166 (4 lead)	2800 (60 Hz)
600 V 5M4276 (4 lead)	2800 (60 Hz)
600 V 5M4278 (4 lead)	3900 (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	60 Hz	50 Hz
Manufacturer	Detroit Diesel/MTU	
Engine: model	12V2000 G83 R123-7M36	12V2000 G63 R123-7M38
Engine: type	4-Cycle, Turbocharged, Intercooled	
Cylinder arrangement	12-V	
Displacement, L (cu. in.)	23.9 (1458)	
Bore and stroke, mm (in.)	130 x 150 (5.12 x 5.91)	
Compression ratio	14.0:1	16.0:1
Piston speed, m/min. (ft./min.)	540 (1772)	450 (1476)
Main bearings: quantity, type	7, Precision Half Shells	
Rated rpm	1800	1500
Max. power at rated rpm, kWm (BHP)	835 (1120)	680 (912)
Cylinder head material	Cast Iron	
Crankshaft material	Forged Steel	
Valve (exhaust) material	Austenitic Steel	
Governor: type, make/model	MDEC 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	60 Hz	50 Hz
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)	186 (6568)	138 (4873)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	530 (986)	595 (1103)
Maximum allowable back pressure, kPa (in. Hg)	5.1 (1.5)	
Exh. outlet size at eng. hookup, mm (in.)	See ADV drawing	

### Engine Electrical

Engine Electrical System	60 Hz	50 Hz
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		Two, 1150
Battery voltage (DC)		12

### Fuel

Fuel System	60 Hz	50 Hz
Fuel supply line, min. ID, mm (in.)	12 (0.5)	
Fuel return line, min. ID, mm (in.)	6 (0.25)	
Max. fuel flow, Lph (gph)	450 (119)	
Min./max. fuel pressure at engine supply connection, kPa (in. Hg)	-30/50 (-8.8/14.8)	
Fuel filter: quantity, type	1, Secondary	
Recommended fuel	#2 Diesel	

### Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity dipstick mark max., L (qt.)	67 (71)	
Oil pan capacity, initial filling, L (qt.)	77 (81)	
Oil filter: quantity, type	2, Cartridge	
Oil cooler	Water-Cooled	

# Application Data

## Cooling

Radiator System	60 Hz	50 Hz
Ambient temperature, standby rating, °C (°F) *	40 (104)	45 (113)
Ambient temperature, prime rating, °C (°F) *	45 (113)	50 (122)
Engine water capacity, L (gal.)	110 (29)	
Radiator system capacity, including engine, L (gal.)	238 (63)	
Engine jacket water flow, Lpm (gpm)	967 (255)	817 (216)
Charge cooler water flow, Lpm (gpm)	283 (75)	233 (62)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	365 (20757)	285 (16207)
Heat rejected to charge cooling water at rated kW, dry exhaust, kW (Btu/min.)	225 (12795)	160 (9099)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	1219 (48)	1372 (54)
Fan, kWm (HP)	30 (40)	31 (41)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O)	0.125 (0.5)	

High Ambient Radiator System	60 Hz	50 Hz
Ambient temperature, °C (°F) *	50 (122)	—
Engine water capacity, L (gal.)	110 (29)	—
Radiator system capacity, including engine, L (gal.)	257 (68)	—
Engine jacket water flow, Lpm (gpm)	967 (255)	—
Charge cooler water flow, Lpm (gpm)	283 (75)	—
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	365 (20757)	—
Heat rejected to charge cooling water at rated kW, dry exhaust, kW (Btu/min.)	225 (12795)	—
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	1372 (54)	—
Fan, kWm (HP)	51 (68)	—
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).

Remote Radiator System †	60 Hz	50 Hz
Exhaust manifold type	Dry	
Connection sizes:		
Water inlet/outlet, mm (in.)	77 (3)	
Intercooler inlet/outlet, mm (in.)	51 (2)	
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.

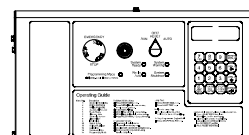
## Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm) ‡	745 (26300)	841 (29700)
High ambient radiator-cooled cooling air, m <sup>3</sup> /min. (scfm) ‡	1161 (41000)	—
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) ‡	331 (11700)	337 (11900)
Combustion air, m <sup>3</sup> /min. (cfm)	72 (2542)	48 (1695)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	45 (2559)	
Alternator, kW (Btu/min.)	47 (2673)	49 (2786)

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

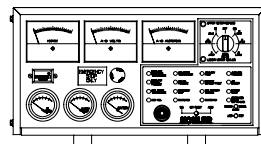
Fuel Consumption	60 Hz	50 Hz
<b>Diesel, Lph (gph) at % load</b>	<b>Standby Rating</b>	
100%	196.2 (51.8)	158.2 (41.8)
75%	149.3 (39.5)	118.0 (31.2)
50%	101.5 (26.8)	80.7 (21.3)
25%	55.7 (14.7)	44.9 (11.9)
<b>Diesel, Lph (gph) at % load</b>	<b>Prime Rating</b>	
100%	180.6 (47.7)	144.6 (38.2)
75%	142.2 (37.5)	108.5 (28.7)
50%	97.5 (25.8)	74.9 (19.8)
25%	55.5 (14.6)	41.3 (10.9)

## 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
- Radiator Duct Flange

## Available Accessories

### Open Unit

- Exhaust Silencer, Critical, Kit: PA-354880
- Exhaust Silencer, Hospital, Kit: PA-354905
- 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
- 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)
- Direct Mounting
- Integral Vibration Isolation Mounting
- 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)
- Spring Isolators

### 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)
- Prime Power Switch (550 controller only)
- Remote Annunciator Panel
- Remote Audiovisual Alarm Panel
- Remote Emergency Stop Kit
- Remote Mounting Cable
- Run Relay Kit

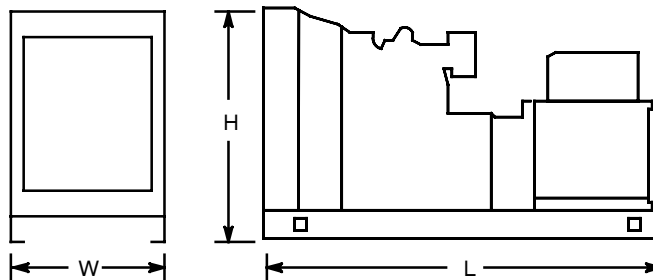
## Miscellaneous Accessories

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

## Dimensions and Weights

Overall Size, max., L x W x H, mm (in.): 4403 x 1659 x 2227  
 (173.3 x 65.3 x 87.7)

Weight, radiator model, max. wet, kg (lb.):  
 40°C (60 Hz) and 45°C (50 Hz) radiator 5815 (12820)  
 45°C (60 Hz) and 50°C (50 Hz) radiator 5942 (13100)



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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