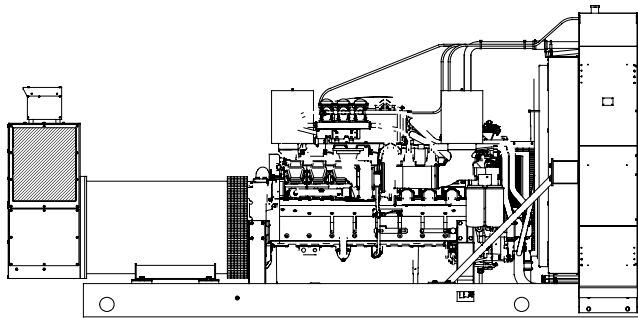




**Ratings Range**

		60 Hz	50 Hz
Standby:	kW	785-910	640-800
	kVA	981-1138	800-1000
Prime:	kW	715-830	584-728
	kVA	894-1038	730-910



**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.
- The generator set complies with ISO 8528-5, Class G3, requirements for transient performance.
- The 60 Hz generator set engine is certified by the Environmental Protection Agency (EPA) to conform to Tier 2 nonroad emissions regulations.
- 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
5M4036	240/416	3	60	825/1031	1431	785/981	1362	770/963	1336	715/894	1240
	277/480	3	60	900/1125	1353	825/1031	1240	820/1025	1233	800/1000	1203
	220/380	3	50	704/880	1337	652/815	1238	664/830	1261	600/750	1140
	230/400	3	50	712/890	1285	688/860	1241	672/840	1212	632/790	1140
5M4038	240/416	3	50	668/835	1159	640/800	1110	628/785	1089	584/730	1013
	240/416	3	60	885/1106	1535	835/1044	1449	820/1025	1423	770/963	1336
	277/480	3	60	900/1125	1353	900/1125	1353	820/1025	1233	820/1025	1233
	220/380	3	50	764/955	1451	720/900	1367	696/870	1322	664/830	1261
5M4044	230/400	3	50	768/960	1386	744/930	1342	700/875	1263	676/845	1220
	240/416	3	50	748/935	1298	724/905	1256	704/880	1221	660/825	1145
	220/380	3	60	830/1038	1576	830/1038	1576	755/944	1434	755/944	1434
	240/416	3	60	910/1138	1579	910/1138	1579	830/1038	1440	830/1038	1440
5M4168	277/480	3	60	910/1138	1368	910/1138	1368	830/1038	1248	830/1038	1248
	220/380	3	50	800/1000	1519	800/1000	1519	728/910	1383	728/910	1383
	230/400	3	50	800/1000	1443	800/1000	1443	728/910	1313	728/910	1313
5M4280	240/416	3	50	800/1000	1388	800/1000	1388	728/910	1263	728/910	1263
5M4168	220/380	3	60	900/1125	1709	900/1125	1709	820/1025	1557	820/1025	1557
5M4280	347/600	3	60	900/1125	1083	900/1125	1083	820/1025	986	820/1025	986

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
Leads: quantity, type	10, Reconnectable
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	5M4036 (10 lead) 3150 (60 Hz), 2400 (50 Hz)
480 V	5M4038 (4 lead) 3050 (60 Hz), 2350 (50 Hz)
480 V	5M4044 (4 bus bar) 3900 (60 Hz), 2650 (50 Hz)
380 V	5M4168 (4 bus bar) 2700 (60 Hz)
600 V	5M4280 (4 bus bar) 3450 (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 drip-proof 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	16V2000 G45 R163-8A37	16V2000 G25 R163-8A38
Engine: type	4-Cycle, Turbocharged, Intercooled	
Cylinder arrangement	16-V	
Displacement, L (cu. in.)	31.84 (1943)	
Bore and stroke, mm (in.)	130 x 150 (5.12 x 5.91)	
Compression ratio	16.0:1	
Piston speed, m/min. (ft./min.)	540 (1772)	
Main bearings: quantity, type	9, Precision Half Shells	
Rated rpm	1800	1500
Max. power at rated rpm, kWm (BHP)	1010 (1354)	890 (1194)
Cylinder head material	Cast Iron	
Crankshaft material	Forged Steel	
Valve (exhaust) material	Austenitic Steel	
Governor: type, make/model	ADEC 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)	210 (7416)	180 (6357)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	530 (986)	
Maximum allowable back pressure, kPa (in. Hg)	8.5 (2.5)	
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)	480 (127)	
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.)	88 (93)	
Oil pan capacity, initial filling, L (qt.)	102 (108)	
Oil filter: quantity, type	2, Cartridge	
Oil cooler	Water-Cooled	

# Application Data

## Cooling

Radiator System	60 Hz	50 Hz
Ambient temperature, °C (°F)	40 (104)	
Engine water capacity, L (gal.)	150 (40)	
Radiator system capacity, including engine, L (gal.)	318 (84)	
Engine jacket water flow, Lpm (gpm)	833 (220)	667 (176)
Charge cooler water flow, Lpm (gpm)	258 (68)	233 (62)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	355 (20206)	375 (21345)
Heat rejected to charge cooling water at rated kW, dry exhaust, kW (Btu/min.)	290 (16507)	195 (11099)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	1524 (60)	
Fan, kWm (HP)	43 (58)	25 (34)
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 jacket water capacity, L (gal.)	150 (40)	
Radiator system capacity, including engine, L (gal.)	360 (95)	
Engine jacket water flow, Lpm (gpm)	833 (220)	667 (176)
Charge cooler water flow, Lpm (gpm)	258 (68)	233 (62)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	355 (20206)	375 (21345)
Heat rejected to charge cooling water at rated kW, dry exhaust, kW (Btu/min.)	290 (16507)	195 (11099)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	1524 (60)	
Fan, kWm (HP)	63 (84)	36 (48)
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†	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.

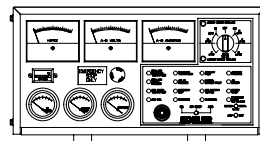
## Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm)‡	1154 (40741)	910 (32152)
High ambient radiator-cooled cooling air, m <sup>3</sup> /min. (scfm)‡	1268 (44790)	997 (35199)
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)‡	351 (12400)	
Combustion air, m <sup>3</sup> /min. (cfm)	84 (2966)	66 (2331)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	45 (2559)	
Alternator, kW (Btu/min.)	53 (3014)	

‡ 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>		
100%	244.5 (64.6)	208.1 (55.0)
75%	186.9 (49.4)	154.5 (40.8)
50%	127.0 (33.6)	105.6 (27.9)
25%	70.7 (18.7)	58.3 (15.4)
<b>Diesel, Lph (gph) at % load</b>		
100%	222.5 (58.8)	189.4 (50.0)
75%	170.1 (45.0)	142.0 (37.5)
50%	116.1 (30.7)	97.1 (25.6)
25%	65.4 (17.3)	54.0 (14.3)

## Controllers

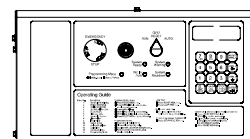


### Decision-Maker® 3+ Controller

Provides system control and monitoring capabilities.

- Analog display using AC meters, engine gauges, and voltage selector switch.
- 16-light status, warning, and shutdown fault annunciation.
- Alarm horn, emergency stop switch, and hour meter features.
- Remote annunciation options.
- Remote start and prime power options.

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

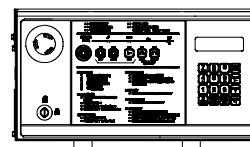


### Decision-Maker® 550 Controller

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.



### 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.

## Additional Standard Features

- Alternator Protection  
(standard with Decision-Maker® 550 and 6000 controllers)
- Engine Closed Crankcase Breather
- Oil Drain Extension
- Operation and Installation Literature
- Radiator Duct Flange
- Reactive Droop Compensation  
(standard with Decision-Maker® 550 and 6000 controllers)

## Available Options

### Approvals and Listings

- CSA Approval
- IBC Seismic Certification
- Rated Power Factor Testing
- UL 2200 Listing

### Enclosed Unit

- Sound Enclosure/Fuel Tank Package
- Weather Enclosure/Fuel Tank Package

### Open Unit

- Exhaust Silencer, Critical  
(kits: PA-354880 qty. 2, or PA-354898 qty. 1)
- Exhaust Silencer, Hospital  
(kits: PA-354905 qty. 2, PA-361619 qty. 1, or PA-354912 qty. 1)
- Flexible Exhaust Connector, Stainless Steel

### Fuel System

- Flexible Fuel Lines
- Fuel Pressure Gauge
- Fuel/Water Separator

### Controller

- Common Failure Relay
- Communication Products and PC Software  
(Decision-Maker® 550 and 6000 controllers)
- Customer Connection  
(Decision-Maker® 3+ and 550 controllers)
- Dry Contact (isolated alarm)
- Prime Power Switch  
(Decision-Maker® 550 and 6000 controllers)
- Remote Audiovisual Alarm Panel
- Remote Emergency Stop
- Remote Mounting Cable  
(Decision-Maker® 3+ and 550 controllers)
- Remote Serial Annunciator Panel
- Run Relay

### Cooling System

- Block Heater (includes isolation valves);  
Recommended for Ambient Temperatures Below 10°C (50°F)
- High Ambient Radiator
- Remote Radiator Cooling Setup

### Electrical System

- Alternator Strip Heater
- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater
- Battery Rack and Cables
- Bus Bar (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)
- Safeguard Breaker (Decision-Maker® 3+ controller only)

### Paralleling System

- Decision-Maker® Paralleling System (DPS)  
(Decision-Maker® 6000 controller only)
- Manual Speed Adjust Control
- Reactive Droop Compensator  
(Decision-Maker® 3+ controller only)
- Remote Voltage Adjustment Control
- Voltage Regulator Relocation (Decision-Maker® 3+ controller only)

### Miscellaneous

- Air Cleaner, Heavy Duty
- Air Cleaner Restriction Indicator
- Integral Vibration Isolation Mounting
- Solid Mounting/Spring Isolators

### Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

### Warranty

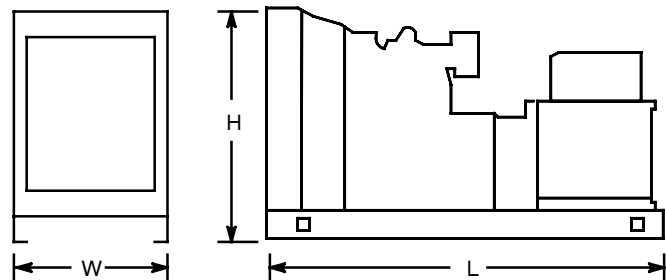
- 2-Year Basic
- 2-Year Prime
- 5-Year Basic
- 5-Year Comprehensive
- 10-Year Major Components

### Other Options

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

## Dimensions and Weights

Overall Size, max., L x W x H, mm (in.): 4854 x 1932 x 2425  
 (191.1 x 76.1 x 95.5)  
 Weight, radiator model, max. wet, kg (lb.): 7663 (16893)



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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