

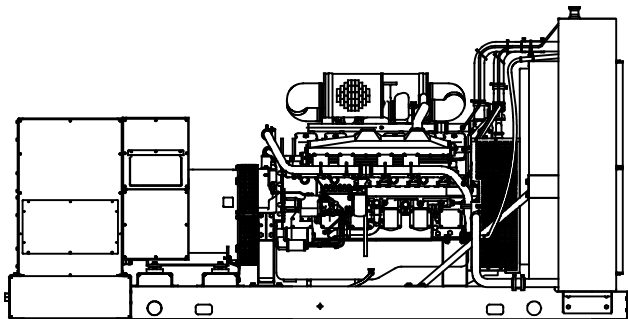


**Tier 2 EPA-Certified for Stationary Emergency Applications**

### Ratings Range

60 Hz

<b>Standby:</b>	<b>kW</b>	725-810
	<b>kVA</b>	906-1013
<b>Prime:</b>	<b>kW</b>	680-730
	<b>kVA</b>	850-913



### 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.
- A standard one-year limited warranty covers all generator set systems and components. Two-, five-, and ten-year extended limited 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:
  - Kohler designed controllers for one-source system integration and remote communication. See Controllers on page 3.
  - 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.
  - Multiple circuit breaker configurations.

### 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
5M4034	240/416	3	60	725/906	1258	725/906	1258	720/900	1249	680/850	1180
	277/480	3	60	810/1013	1218	750/938	1128	730/913	1098	710/888	1067
5M4036	240/416	3	60	810/1013	1405	785/981	1362	730/913	1266	725/906	1258
	277/480	3	60	810/1013	1218	810/1013	1218	730/913	1098	730/913	1098
5M4038	240/416	3	60	810/1013	1405	810/1013	1405	730/913	1266	730/913	1266
	277/480	3	60	810/1013	1218	810/1013	1218	730/913	1098	730/913	1098
5M4166	220/380	3	60	810/1013	1538	810/1013	1538	730/913	1386	730/913	1386
5M4168	220/380	3	60	810/1013	1538	810/1013	1538	730/913	1386	730/913	1386
5M4278	347/600	3	60	810/1013	974	810/1013	974	730/913	878	730/913	878
5M4280	347/600	3	60	810/1013	974	810/1013	974	730/913	878	730/913	878

**RATINGS:** All three-phase units are rated at 0.8 power factor. *Standby Ratings:* The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. *Prime Power Ratings:* 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 and ISO-3046-1. For limited running time and continuous ratings, consult the factory. Obtain technical information bulletin (TIB-101) for ratings guidelines, complete ratings definitions, and site condition derates. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.

# 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	Controller Dependent
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      5M4034 (10 lead)	2600
480 V      5M4036 (10 lead)	3200
480 V      5M4038 (4 lead)	3050
380 V      5M4166 (4 lead)	2800
380 V      5M4168 (4 bus bar)	2700
600 V      5M4278 (4 lead)	3900
600 V      5M4280 (4 lead)	3450

- 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  $\pm 0.25\%$  no-load to full-load regulation.
- Brushless alternator with brushless pilot exciter for excellent load response.

## Application Data

### Engine

Engine Specifications	
Manufacturer	Mitsubishi
Engine model	S12A2-Y2PTAW-2
Engine type	4-Cycle, Turbocharged
Cylinder arrangement	12 V
Displacement, L (cu. in.)	33.93 (2071)
Bore and stroke, mm (in.)	150 x 160 (5.91 x 6.30)
Compression ratio	15.3:1
Piston speed, m/min. (ft./min.)	576 (1890)
Main bearings: quantity, type	7, Precision Half-Shell
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	900 (1207)
Cylinder head material	Cast Iron
Crankshaft material	Forged Steel
Governor type	Electronic
Frequency regulation, no-load to full-load	Isochronous
Frequency regulation, steady state	$\pm 0.25\%$
Frequency	Fixed
Air cleaner type, all models	Dry

### Exhaust

Exhaust System	
Exhaust manifold type	Dry
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)	232 (8192)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	473 (883)
Maximum allowable back pressure, kPa (in. Hg)	5.9 (1.7)
Exhaust outlet size at engine hookup, mm (in.)	See ADV drawing

### Engine Electrical

Engine Electrical System		
Battery charging alternator:		
Ground (negative/positive)		Negative
Volts (DC)		24
Ampere rating		30
Starter motor rated voltage (DC)		Dual, 24
Battery, recommended cold cranking amps (CCA):		
Quantity, CCA rating each		Two, 1150
Battery voltage (DC)		12

### Fuel

Fuel System	
Fuel supply line, min. ID, mm (in.)	19 (0.75)
Fuel return line, min. ID, mm (in.)	19 (0.75)
Max. lift, engine-driven fuel pump, m (ft.)	1.0 (3.0)
Max. fuel flow, Lph (gph)	630 (166)
Max. fuel pump restriction, kPa (in. Hg)	10 (3.0)
Fuel filter: quantity, type	3, Cartridge
Recommended fuel	#2 Diesel

### Lubrication

Lubricating System	
Type	Full Pressure
Oil pan capacity, L (qt.) §	100 (106)
Oil pan capacity with filter, L (qt.) §	120 (127)
Oil filter: quantity, type §	3, Cartridge
Oil cooler	Water-Cooled
§ Kohler recommends the use of Kohler Genuine oil and filters.	

# Application Data

## Cooling

### Radiator System

Ambient temperature, °C (°F)*	50 (122)
Engine jacket water capacity, L (gal.)	100 (26.4)
Radiator system capacity, including engine, L (gal.)	303 (80)
Engine jacket water flow, Lpm (gpm)	1100 (291)
Charge cooler water flow, Lpm (gpm)	470 (124)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	359 (20418)
Heat rejected to charge cooler water at rated kW, dry exhaust, kW (Btu/min.)	282 (16043)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	1524 (60)
Fan kWm (HP)	40 (54)
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†

Exhaust manifold type	Dry
Connection sizes:	
Jacket water engine inlet, mm (in.)	95 (3.75)
Jacket water engine outlet, mm (in.)	95 (3.75)
Intercooler water engine inlet, mm (in.)	67 (2.63)
Intercooler water engine outlet, mm (in.)	95 (3.75)

Static head allowable above engine, kPa (ft. H<sub>2</sub>O) 98 (32.8)

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

## Operation Requirements

### Air Requirements

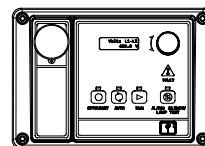
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm)‡	1161 (41000)
Cooling air required for generator set when equipped with city cooling water or remote radiator, based on 14°C (25°F) rise, m <sup>3</sup> /min. (scfm)‡	456 (16100)
Combustion air, m <sup>3</sup> /min. (cfm)	88 (3107)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	77 (4375)
Alternator, kW (Btu/min.)	50 (2843)

‡ 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%	255.1 (67.4)
75%	174.4 (46.1)
50%	118.6 (31.3)
25%	66.7 (17.6)
Diesel, Lph (gph) at % load	Prime Rating
100%	222.1 (58.7)
75%	158.8 (41.9)
50%	108.4 (28.6)
25%	63.0 (16.7)

## Controllers

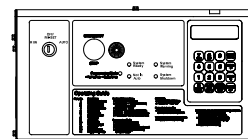


### APM402 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- Digital display and menu control provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or serial configuration
- Controller supports Modbus® protocol
- Integrated hybrid voltage regulator with ±0.5% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-161 for additional controller features and accessories.

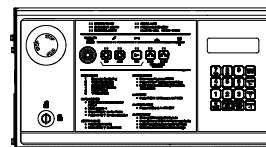


### Decision-Maker® 550 Controller

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.

Modbus® is a registered trademark of Schneider Electric.

## Standard Features

- Alternator Protection
- Customer Connection (Decision-Maker® 6000 controller only)
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature
- Radiator Core Guard

## Available Options

### Approvals and Listings

- CSA Certified
- IBC Seismic Certification
- UL 2200 Listing

### Enclosed Unit

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

### Open Unit

- Exhaust Silencer, Hospital (kit: PA-354912)
- Exhaust Silencer, Critical (kit: PA-354898)
- Flexible Exhaust Connector, Stainless Steel

### Fuel System

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

### Controller

- Common Failure Relay  
(Decision-Maker® 550 and 6000 controllers only)
- Communication Products and PC Software
- Customer Connection (Decision-Maker® 550 controller only)
- Dry Contact (isolated alarm)  
(Decision-Maker® 550 and 6000 controllers only)
- Two Input/Five Output Module (APM402 controller only)
- Prime Power Switch  
(Decision-Maker® 550 and 6000 controllers only)
- Remote Audiovisual Alarm Panel  
(Decision-Maker® 550 controller only)
- Remote Emergency Stop
- Remote Mounting Cable
- Remote Serial Annunciator Panel
- Run Relay
- Manual Speed Adjustment  
(Decision-Maker® 550 and APM402 controllers only)

### Cooling System

- Block Heater; 9000 W, 208 V, 1 Ph
- Block Heater; 9000 W, 240 V, (Select 1 Ph or 3 Ph)
- Block Heater; 9000 W, 380 V, 3 Ph
- Block Heater; 9000 W, 480 V, (Select 1 Ph or 3 Ph)  
Required for Ambient Temperatures Below 0°C (32°F)
- Remote Radiator Cooling Setup

### Electrical System

- Alternator Strip Heater
- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater
- Battery Rack and Cables
- Bus Bar

- Line Circuit Breaker (NEMA type 1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA type 1 enclosure)

### Paralleling System

- Remote Voltage Adjustment Control
- Voltage Sensing (Decision-Maker® 6000 controller only)

### Miscellaneous

- Air Cleaner, Heavy Duty
- Air Cleaner Restriction Indicator
- Crankcase Emission Canister
- Engine Fluids (oil and coolant) Added
- Oil Temperature Gauge
- Rated Power Factor Testing

### Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

### Warranty

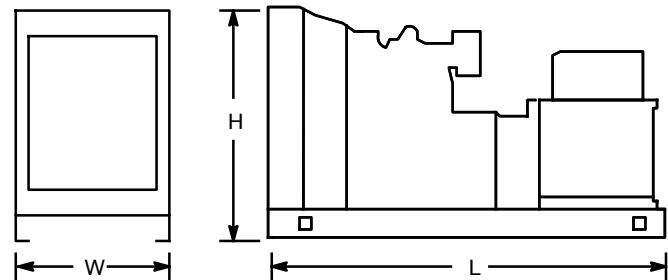
- 2-Year Basic Limited Warranty
- 2-Year Prime Limited Warranty
- 5-Year Basic Limited Warranty
- 5-Year Comprehensive Limited Warranty
- 10-Year Major Components Limited Warranty

### Other Options

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

## Dimensions and Weights

Overall Size, L x W x H, max., mm (in.): 4968 x 1854 x 2419  
 (195.6 x 73.0 x 95.3)  
 Weight (radiator model), wet, max., kg (lb.): 6577 (14500)



Note: This drawing is provided for reference only and should not be used for planning the installation. Contact your local distributor for more detailed information.

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