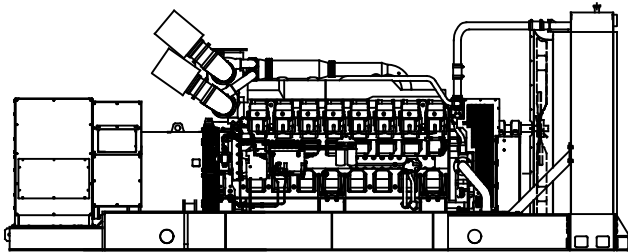




### Ratings Range

		60 Hz	50 Hz
Standby:	kW	1160-1600	1200-1560
	kVA	1450-2000	1500-1950
Prime:	kW	1050-1450	1088-1416
	kVA	1313-1813	1360-1770



### 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).
  - 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
7M4050	220/380	3	60	1160/1450	2203	1160/1450	2203	1050/1313	1994	1050/1313	1994
	240/416	3	60	1410/1763	2446	1370/1713	2377	1340/1675	2325	1270/1588	2203
	277/480	3	60	1520/1900	2285	1500/1875	2255	1450/1813	2180	1430/1788	2150
	220/380	3	50	1248/1560	2370	1200/1500	2279	1168/1460	2218	1088/1360	2066
	230/400	3	50	1304/1630	2353	1248/1560	2252	1240/1550	2237	1160/1450	2093
7M4052	240/416	3	50	1304/1630	2262	1224/1530	2123	1224/1530	2123	1144/1430	1985
	220/380	3	60	1480/1850	2811	1480/1850	2811	1340/1675	2545	1340/1675	2545
	240/416	3	60	1600/2000	2776	1600/2000	2776	1450/1813	2515	1450/1813	2515
	277/480	3	60	1600/2000	2406	1600/2000	2406	1450/1813	2180	1450/1813	2180
	220/380	3	50	1480/1850	2811	1416/1770	2689	1416/1770	2689	1320/1650	2507
7M4054	230/400	3	50	1448/1810	2613	1344/1680	2425	1344/1680	2425	1240/1550	2237
	240/416	3	50	1376/1720	2387	1280/1600	2221	1280/1600	2221	1200/1500	2082
	220/380	3	60	1590/1988	3020	1590/1988	3020	1450/1813	2754	1450/1813	2754
	240/416	3	60	1600/2000	2776	1600/2000	2776	1450/1813	2515	1450/1813	2515
	277/480	3	60	1600/2000	2406	1600/2000	2406	1450/1813	2180	1450/1813	2180
7M4174	220/380	3	50	1560/1950	2963	1528/1910	2902	1416/1770	2689	1400/1750	2659
	230/400	3	50	1560/1950	2815	1536/1920	2771	1416/1770	2555	1416/1770	2555
	240/416	3	50	1560/1950	2706	1496/1870	2595	1416/1770	2457	1376/1720	2387
7M4176	220/380	3	60	1600/2000	3039	1600/2000	3039	1450/1813	2754	1450/1813	2754
7M4290	347/600	3	60	1600/2000	1925	1600/2000	1925	1450/1813	1744	1450/1813	1744
7M4368	2400/4160	3	60	1600/2000	278	1600/2000	278	1450/1813	252	1450/1813	252
	1905/3300	3	50	1424/1780	311	1336/1670	292	1336/1670	292	1240/1550	271
7M4370	2400/4160	3	60	1600/2000	278	1600/2000	278	1450/1813	252	1450/1813	252
	1905/3300	3	50	1560/1950	341	1520/1900	332	1416/1770	310	1400/1750	306

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
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	Controller Dependent
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, 380 V 7M4050 (4 bus bar)	4500 (60 Hz), 2900 (50 Hz)
480 V, 380 V 7M4052 (4 bus bar)	5500 (60 Hz), 4000 (50 Hz)
480 V, 380 V 7M4054 (4 bus bar)	7000 (60 Hz), 4800 (50 Hz)
380 V 7M4174 (4 bus bar)	4200 (60 Hz)
380 V 7M4176 (4 bus bar)	5400 (60 Hz)
600 V 7M4290 (4 bus bar)	5700 (60 Hz)
4160 V, 3300 V 7M4368 (6 lead)	4900 (60 Hz), 2900 (50 Hz)
4160 V, 3300 V 7M4370 (6 lead)	5500 (60 Hz), 3000 (50 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  $\pm 0.25\%$  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
Engine manufacturer, model	Mitsubishi S16R-Y1PTA-2 S16R-Y1PTA-4	
Engine type	4-Cycle, Turbocharged	
Cylinder arrangement	16 V	
Displacement, L (cu. in.)	65.4 (3989)	
Bore and stroke, mm (in.)	170 x 180 (6.69 x 7.09)	
Compression ratio	15.0:1	
Piston speed, m/min. (ft./min.)	648 (2126)	540 (1772)
Main bearings: quantity, type	9, Precision Half-Shell	
Rated rpm	1800	1500
Max. power at rated rpm, kWm (BHP)	1750 (2346)	1701 (2280)
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	60 Hz	50 Hz
Exhaust manifold type	Dry	
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)	404 (14265)	385 (13594)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	520 (968)	519 (966)
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	60 Hz	50 Hz
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		Four, 1150
Battery voltage (DC)		12

### Fuel

Fuel System	60 Hz	50 Hz
Fuel supply line, min. ID, mm (in.)	25 (1.0)	
Fuel return line, min. ID, mm (in.)	19 (0.75)	
Max. fuel flow, Lph (gph)	560 (148)	510 (135)
Max. fuel pump restriction, kPa (in. Hg)	10 (3.0)	
Max. return line restriction, kPa (in. Hg)	20 (5.9)	
Fuel filter: quantity, type	4, Secondary	
Recommended fuel	#2 Diesel	

### Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, L (qt.)	200 (211)	
Oil pan capacity with filter, L (qt.)	250 (264)	
Oil filter: quantity, type	4, Cartridge	
Oil cooler	Water-Cooled	

# Application Data

## Cooling

Radiator System	60 Hz	50 Hz
Ambient temperature, standby rating, °C (°F)*	50 (122)	45 (113)
Ambient temperature, prime rating, °C (°F)*	50 (122)	
Engine jacket water capacity, L (gal.)	170 (44.9)	
Radiator system capacity, including engine, L (gal.)	367 (96.9)	
Engine jacket water flow, Lpm (gpm)	1850 (489)	1650 (436)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	1112 (63306)	1063 (60452)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	1829 (72)	
Fan kWm (HP)	51 (69)	44 (59)
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
Connection sizes:	Class 150 ANSI Flange	
Water inlet, mm (in.)	191 (7.5) Bolt Circle	
Water outlet, mm (in.)	191 (7.5) Bolt Circle	
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.

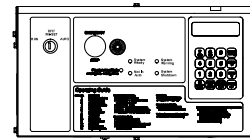
## Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm)‡	1727 (61000)	1620 (57200)
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)‡	773 (27300)	750 (26500)
Combustion air, m <sup>3</sup> /min. (cfm)	152 (5367)	146 (5155)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	133 (7597)	127 (7254)
Alternator, kW (Btu/min.)	82 (4663)	

‡ 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%	430 (113.7)	410 (108.4)
75%	321 (84.9)	302 (79.9)
50%	224 (59.1)	208 (55.0)
25%	127 (33.6)	116 (30.7)
<b>Diesel, Lph (gph) at % load</b>	<b>Prime Rating</b>	
100%	389 (102.8)	369 (97.6)
75%	295 (77.9)	277 (73.1)
50%	209 (55.2)	193 (51.1)
25%	124 (32.8)	112 (29.6)

# Controllers

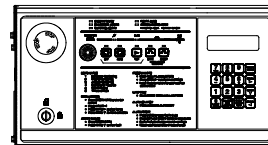


### Decision-Maker® 550 Controller

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
- Alternator Strip Heater (standard on 3300 volt and above)
- 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
- UL 2200 Listing

### Open Unit

- Exhaust Silencer, Hospital (kit: PA-361626)
- Exhaust Silencer, Critical (kit: PA-361625)
- 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
- Customer Connection (Decision-Maker® 550 controller only)
- Dry Contact Kit (isolated alarm)
- Prime Power Switch
- Remote Audiovisual Alarm Panel (Decision-Maker® 550 controller only)
- Remote Emergency Stop
- Remote Mounting Cable
- Remote Serial Annunciator Panel
- Run Relay

### 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 20°C (68°F)
- Remote Radiator Cooling Setup

### Electrical System

- Alternator Strip Heater (available up to 600 volt)
- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater
- Battery Rack and Cables
- Line Circuit Breaker (NEMA type 1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA type 1 enclosure)

### Paralleling System

- Manual Speed Adjustment (Decision-Maker® 550 and 6000 controllers only)
- 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
- Spring Isolators

### Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

### Warranty

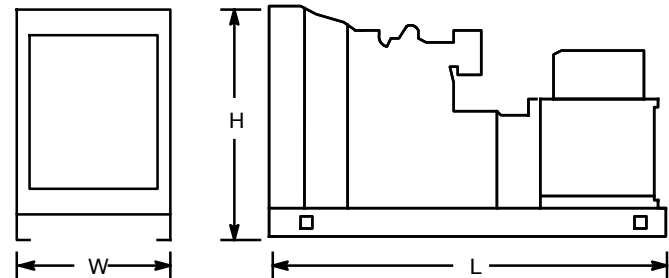
- 2-Year Basic Limited Warranty
- 2-Year Prime Limited Warranty
- 5-Year Basic Limited Warranty
- 5-Year Comprehensive Limited Warranty
- 10-Year Major Components Limited Warranty

### Other Options

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

## Dimensions and Weights

Overall Size, L x W x H, max., mm (in.): 6701 x 2232 x 2566  
 (263.8 x 87.9 x 101.0)  
 Weight (radiator model), wet, max., kg (lb.): 14334 (31600)



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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