



### Ratings Range

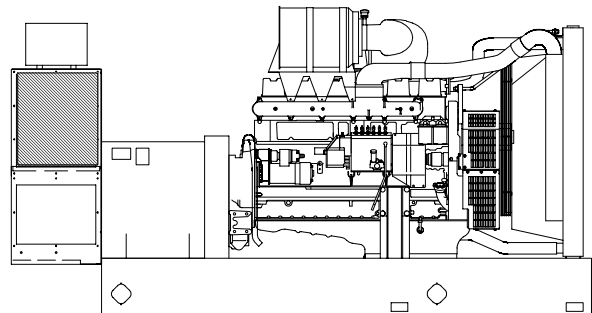
		60 Hz	50 Hz
Standby:	kW	440-515	364-440
	kVA	550-644	455-550
Prime:	kW	435-460	328-400
	kVA	544-575	410-500

### Generator Ratings

Generator	Voltage	Ph	Hz	Standby Rating		Prime Rating	
				150° C Rise	130° C Rise	125° C Rise	105° C Rise
				kW/kVA	kW/kVA	kW/kVA	kW/kVA
5M4024	120/208	3	60	450/563	440/550	440/550	435/544
	127/220	3	60	465/581	465/581	450/563	450/563
	139/240	3	60	505/631	475/594	450/563	450/563
	240/416	3	60	450/563	440/550	440/550	435/544
	277/480	3	60	505/631	475/594	450/563	450/563
	110/190	3	50	404/505	400/500	400/500	372/465
	115/200	3	50	404/505	388/485	380/485	360/450
	120/208	3	50	380/475	364/455	352/440	328/410
	220/380	3	50	404/505	400/500	400/500	372/465
	230/400	3	50	404/505	388/485	380/476	360/450
240/416	3	50	380/475	364/455	352/440	328/410	
5M4027	120/208	3	60	500/625	475/594	450/563	445/556
	127/220	3	60	505/631	500/625	450/563	450/563
	139/240	3	60	505/631	505/631	455/569	455/569
	240/416	3	60	500/625	475/594	450/563	445/556
	277/480	3	60	505/631	505/631	455/569	455/569
	110/190	3	50	432/540	408/510	400/500	380/475
	115/200	3	50	436/545	424/530	400/500	392/490
	120/208	3	50	424/530	408/510	400/500	372/465
	220/380	3	50	432/540	408/510	400/500	380/475
	230/400	3	50	436/545	424/530	400/500	392/490
240/416	3	50	424/530	408/510	400/500	372/465	
5M4028	120/208	3	60	510/638	510/638	455/569	455/569
	127/220	3	60	510/638	510/638	455/569	455/569
	139/240	3	60	510/638	510/638	455/569	455/569
	220/380	3	60	470/588	470/588	455/569	455/569
	240/416	3	60	510/638	510/638	455/569	455/569
	277/480	3	60	510/638	510/638	455/569	455/569
	110/190	3	50	440/550	440/550	400/500	400/500
	115/200	3	50	440/550	440/550	400/500	400/500
	120/208	3	50	440/550	432/540	400/500	400/500
	220/380	3	50	440/550	440/550	400/500	400/500
230/400	3	50	440/550	440/550	400/500	400/500	
240/416	3	50	440/550	432/540	400/500	400/500	
5M4030	120/208	3	60	510/638	510/638	455/569	455/569
	127/220	3	60	510/638	510/638	455/569	455/569
	139/240	3	60	515/644	510/638	460/575	455/569
	220/380	3	60	485/606	485/606	455/569	455/569
	240/416	3	60	510/638	510/638	455/569	455/569
	277/480	3	60	515/644	510/638	460/575	455/569
	110/190	3	50	440/550	440/550	400/500	400/500
	115/200	3	50	440/550	440/550	400/500	400/500
	120/208	3	50	440/550	440/550	400/500	400/500
	220/380	3	50	440/550	440/550	400/500	400/500
230/400	3	50	440/550	440/550	400/500	400/500	
240/416	3	50	440/550	440/550	400/500	400/500	
5M4032	120/208	3	60	515/644	515/644	460/575	460/575
	127/220	3	60	515/644	515/644	460/575	460/575
	139/240	3	60	515/644	515/644	460/575	460/575
	220/380	3	60	510/638	510/638	460/575	455/569
	240/416	3	60	515/644	515/644	460/575	460/575
	277/480	3	60	515/644	515/644	460/575	460/575
	110/190	3	50	440/560	440/550	400/500	400/500
	115/200	3	50	440/550	440/550	400/500	400/500
	120/208	3	50	440/550	440/550	400/500	400/500
	220/380	3	50	440/550	440/550	400/500	400/500
230/400	3	50	440/550	440/550	400/500	400/500	
240/416	3	50	440/550	440/550	400/500	400/500	
5M4162	220/380	3	60	500/625	485/606	455/569	455/569
5M4164	220/380	3	60	515/644	515/644	460/575	460/575
5M4270	347/600	3	60	505/631	505/631	450/563	450/563
5M4272	347/600	3	60	515/644	515/644	455/569	455/569

### 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 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 1 nonroad emissions regulations.
- A one-year limited warranty covers all systems and components. Two-, five-, and ten-year extended warranties are also available.
- Generator features:
  - Kohler's unique Fast-Response™ excitation system delivers the fastest voltage response in the industry.
  - The brushless, rotating-field generator has broadrange reconnectability.
  - Kohler's permanent magnet-excited generator (PMG) provides superior short-circuit capability.
- 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 microprocessor controller combine to deliver one of the most advanced control systems in today's generator market.



**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 0.8% per 100 m (328 ft.) elevation above 1000 m (3280 ft.). *Temperature:* Derate 5.0% per 10°C (18°F) temperature above 40°C (104°F). For radiator cooling system capacity, derate 0.5°C (0.9°F) per 100 m (328 ft.) elevation above 150 m (492 ft.).

# Alternator Specifications

Specifications	Generator
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Permanent-Magnet, Fast-Response™
Leads: quantity, type	12, Reconnectable
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material .....	Class H
Temperature rise .....	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load	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 (12 lead) ....	1350 (60Hz), 880 (50Hz)
480 V, 380 V 5M4027 (12 lead) ....	1575 (60Hz), 1100 (50Hz)
480 V, 380 V 5M4028 (12 lead) ....	1800 (60Hz), 1250 (50Hz)
480 V, 380 V 5M4030 (12 lead) ....	1800 (60Hz), 1125 (50Hz)
480 V, 380 V 5M4032 (12 lead) ....	2200 (60Hz), 1400 (50Hz)
380 V 5M4162 (4 lead) .....	2100 (60Hz)
380 V 5M4164 (4 lead) .....	2300 (60Hz)
380 V 5M4270 (4 lead) .....	1250 (60Hz)
380 V 5M4272 (4 lead) .....	1750 (60Hz)

- 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 generator field.
- Self-ventilated and dripproof construction.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.
- 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
Engine model	D500 16.1A60	D500 16.1A50
Engine type	4-Cycle, Turbocharged, Charge Air Cooled	
Cylinder arrangement	6, Inline	
Displacement, L (cu. in.)	16.12 (984)	
Bore and stroke, mm (in.)	144 x 165 (5.67 x 6.50)	
Compression ratio	15.0:1	
Piston speed, m/min. (ft./min.)	594 (1949)	495 (1624)
Main bearings: quantity, type	7, Precision Half-Shell	
Rated rpm	1800	1500
Max. power at rated rpm, kWm (BHP)	565 (757)	485 (650)
Cylinder head material	Cast Iron	
Piston: type, material	Swirl Chamber, Graphite-Coated Aluminum	
Crankshaft material	Forged Steel	
Valve material	Nimonic	
Governor: type, make/model	GAC, ESD 5500	
Frequency regulation, no-load to full-load	Isochronous	
Frequency regulation, steady state	±0.25%	
Frequency	Field-Convertible	
Air cleaner type, all models	Dry	

### Engine Electrical

Engine Electrical System	60 Hz	50 Hz
Battery charging alternator:		
Ground (negative/positive) .....		Negative
Volts (DC) .....		24
Ampere rating .....		60
Starter motor rated voltage (DC)		24
Battery, recommended cold cranking amps (CCA):		
Qty., CCA rating .....		2, 1000
Battery voltage (DC)		12

### Fuel

Fuel System	60 Hz	50 Hz
Fuel supply line, min. ID, mm (in.)		10 (0.39)
Fuel return line, min. ID, mm (in.)		10 (0.39)
Max. lift, engine-driven fuel pump, m (ft.)		3.0 (9.8)
Max. fuel flow, Lph (gph)	215 (56.8)	205 (54.2)
Fuel prime pump		Manual
Fuel filter type		Secondary, 8 Microns
Recommended fuel		#2 Diesel

### Lubrication

Lubricating System	60 Hz	50 Hz
Type		Full Pressure
Oil pan capacity, L (qt.)		57 (60)
Oil pan capacity with filter, L (qt.)		64 (68)
Oil filter: quantity, type		3, Cartridge
Oil cooler		Water-Cooled

### Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)	115.8 (4090)	98.3 (3470)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	554 (1030)	561 (1042)
Maximum allowable back pressure, kPa (in. Hg)	7 (2.1)	5 (1.5)
Engine exhaust outlet size, mm (in.)	See ADV Drawing	

# Application Data

## Cooling

Radiator System	60 Hz	50 Hz
Ambient temperature, °C (°F)*	45 (113)	
Engine jacket water capacity, L (gal.)	35 (9.25)	
Radiator system capacity, including engine, L (gal.)	64 (16.9)	
Engine jacket water flow, Lpm (gpm)	630 (166)	522 (138)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	234 (13300)	194 (11020)
Heat rejected to charge air cooler at rated kW, dry exhaust, kW (Btu/min.)	132 (7530)	99 (5650)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	890 (35)	
Fan, kWm (HP)	12 (16)	7 (9)
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.)	35 (9.25)	
Radiator system capacity, including engine, L (gal.)	64 (16.9)	
Engine jacket water flow, Lpm (gpm)	630 (166)	522 (138)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	234 (13300)	194 (11020)
Heat rejected to charge air cooler at rated kW, dry exhaust, kW (Btu/min.)	132 (7530)	99 (5650)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	890 (35)	
Fan, kWm (HP)	19 (25)	11 (15)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O)	0.125 (0.5)	

\* Weather and sound enclosures with internal silencer reduce ambient temperature capability by 5°C (9°F).

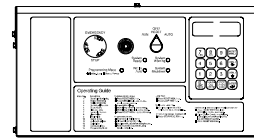
# Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm)†	550 (19425) at 45°C	450 (15890) at 45°C
	592 (20900) at 50°C	484 (17100) at 50°C
Combustion air, m <sup>3</sup> /min. (cfm)	41.6 (1470)	34.3 (1210)
Heat rejected to ambient air:		
Engine, kW (Btu/min.) . . . . .	114.3 (6500)	97.4 (5540)
Generator, kW (Btu/min.) . . . . .	29.2 (1660)	26.0 (1480)

† Air density = 1.20 kg/m<sup>3</sup> (0.075 lbf/ft<sup>3</sup>)

Fuel Consumption	60 Hz	50 Hz
<b>Diesel, Lph (gph) at % load</b>	<b>Standby Rating</b>	
100%	141.2 (37.3)	120.2 (31.8)
75%	102.3 (27.0)	87.3 (23.1)
50%	70.4 (18.6)	59.6 (15.7)
25%	40.8 (10.8)	33.5 (8.8)
<b>Diesel, Lph (gph) at % load</b>	<b>Prime Rating</b>	
100%	125.7 (33.2)	107.7 (28.5)
75%	93.1 (24.6)	79.6 (21.0)
50%	64.8 (17.1)	54.9 (14.5)
25%	37.8 (10.0)	31.0 (8.2)

## Controllers



### Available Controllers

#### Decision-Maker™ 550 Controller

Audiovisual annunciation with NFPA 110 Level 1 capability. Programmable microprocessor logic and digital display features. Generator 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.

## Standard Features and Accessories

### Standard Features

- Battery Rack and Cables
- Electronic, Isochronous Governor
- Oil Drain Extension
- Operation and Installation Literature
- Alternator Protection (standard with Decision-Maker™ 550)

### Accessories

#### Enclosed Unit

- Sound Enclosure and Subbase Fuel Tank Packages
- Weather Enclosure and Subbase Fuel Tank Packages

#### Open Unit

- Exhaust Silencer, Hospital (kits: PA-354903, PA-354907)
- Exhaust Silencer, Critical (kits: PA-354881, PA-354894)
- Flexible Exhaust Connector, Stainless Steel

#### Cooling System

- Block Heater; recommended for ambient temperatures below 4°C (40°F)
- Radiator Duct Flange

#### Fuel System

- Flexible Fuel Lines
- Fuel Pressure Gauge
- Fuel/Water Separator with Primary Filter
- Subbase Fuel Tanks
- Subbase Fuel Tank with Day Tank

#### Electrical System

- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater

#### Engine and Generator

- Air Cleaner, Heavy Duty
- Air Cleaner Restriction Indicator
- Bus Bar Kits
- Crankcase Emission Canister
- CSA Certification
- Generator Strip Heater
- Line Circuit Breaker (NEMA1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)
- Rated Power Factor Testing
- Rodent Guards
- Safeguard Breaker (not available with Decision-Maker™ 550)
- Skid End Caps

#### Paralleling System

- Load-Sharing Module
- Reactive Droop Compensator
- Remote Speed Adjusting Control
- Remote Voltage Adjustment Control
- Voltage Regulator Relocation Kit

#### Maintenance and Literature

- General Maintenance Literature Kit
- Maintenance Kit (includes air, oil, and fuel filters)
- NFPA 110 Literature
- Overhaul Literature Kit
- Production Literature Kit

#### Controller

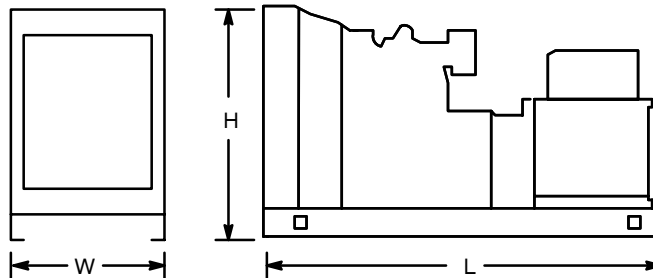
- Common Failure Relay Kit
- Communications Products and PC Software (Decision-Maker™ 550 controller only)
- Customer Connection Kit
- Dry Contact Kit (isolated alarm)
- Engine Prealarm Sender Kit
- Prime Power Switch Kit (Decision-Maker™ 550 controller only)
- Remote Annunciator Panel
- Remote Audiovisual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

#### Miscellaneous Accessories

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

### Dimensions and Weights

Overall Size, L x W x H, mm (in.): 3764 x 1270 x 1885  
 (148.19 x 50.00 x 74.23)  
 Weight (radiator model), wet, kg (lb.): 3483 (7680)



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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