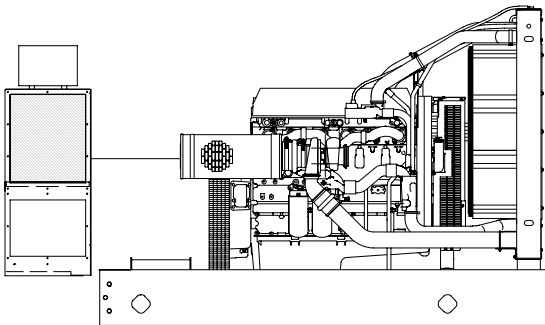




Ratings Range

60 Hz			
Standby:	kW	305-365	
	kVA	381-456	
Prime:	kW	275-330	
	kVA	344-413	



Generator Set Ratings

Alternator	Voltage	Ph	Hz	150°C	130°C	125°C	105°C
				Rise Standby Rating kW/kVA	Rise Standby Rating kW/kVA	Rise Prime Rating kW/kVA	Rise Prime Rating kW/kVA
4M4019	120/208	3	60	355/444	350/438	325/406	325/406
	127/220	3	60	355/444	355/444	325/406	325/406
	139/240	3	60	355/444	355/444	325/406	325/406
	220/380	3	60	305/381	305/381	275/344	275/344
	240/416	3	60	355/444	350/438	325/406	325/406
	277/480	3	60	355/444	355/444	325/406	325/406
4M4021	120/208	3	60	360/450	360/450	325/406	325/406
	127/220	3	60	360/450	360/450	325/406	325/406
	139/240	3	60	360/450	360/450	325/406	325/406
	220/380	3	60	315/394	315/394	285/356	285/356
	240/416	3	60	360/450	360/450	325/406	325/406
	277/480	3	60	360/450	360/450	325/406	325/406
5M4027	120/208	3	60	365/456	365/456	330/413	330/413
	127/220	3	60	365/456	365/456	330/413	330/413
	139/240	3	60	360/450	360/450	325/406	325/406
	220/380	3	60	365/456	365/456	330/413	330/413
	240/416	3	60	365/456	365/456	330/413	330/413
	277/480	3	60	360/450	360/450	325/406	325/406
4M4158	220/380	3	60	360/450	360/450	325/406	325/406
5M4162	220/380	3	60	360/450	360/450	325/406	325/406
4M4266	347/600	3	60	360/450	360/450	325/406	325/406
5M4272	347/600	3	60	365/456	365/456	330/413	330/413

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 complies with ISO 8528-5, Class G3, requirements for transient performance.
- 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 60 Hz generator set engine is certified by the Environmental Protection Agency (EPA) to conform to Tier 3 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.
 - 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 manage the engine.

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 1.5% per 305 m (1000 ft.) elevation above 183 m (600 ft.) up to a maximum elevation of 3660 m (12000 ft.). **Temperature:** Derate 1.0% per 5.5°C (10°F) temperature above 25°C (77°F). For radiator cooling system capacity, derate 1.4°C (2.5°F) per 305 m (1000 ft.) elevation above 183 m (600 ft.).

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%
Voltage regulation, no-load to full-load (with 0.5% drift due to temp. variation)	3-Phase Sensing, $\pm 0.25\%$
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 4M4019 (12 lead)	1350
480 V 4M4021 (12 lead)	1325
480 V 5M4027 (12 lead)	1550
380 V 4M4158 (4 lead)	1118
380 V 5M4162 (4 lead)	2100
600 V 4M4266 (4 lead)	1300
600 V 5M4272 (4 lead)	1750

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

Application Data

Engine

Engine Specifications	
Manufacturer	Detroit Diesel
Engine: model, type	S60, 4-Cycle Turbocharged, Charge Air-Cooled
Cylinder arrangement	6, Inline
Displacement, L (cu. in.)	14.0 (855)
Bore and stroke, mm (in.)	133 x 168 (5.24 x 6.61)
Compression ratio	16.0:1
Piston speed, m/min. (ft./min.)	604 (1980)
Main bearings: quantity, type	7, Precision Half-Shell
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	410 (550)
Cylinder head material	Cast Iron
Crankshaft material	Forged Steel
Valve material:	
Intake	Iron-Based Seat
Exhaust	Nickel-Based Seat
Governor: type, make/model	DDEC Electronic Control
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 flow at rated kW, m ³ /min. (cfm)	87.2 (3080)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	517 (963)
Maximum allowable back pressure, kPa (in. Hg)	10.2 (3.0)
Engine exhaust outlet size, mm (in.)	See ADV Drawing

Engine Electrical

Engine Electrical System	
Battery charging alternator:	
Ground (negative/positive)	Negative
Volts (DC)	24
Ampere rating	40
Starter motor rated voltage (DC)	24
Battery, recommended cold cranking amps (CCA):	
Qty., CCA rating each	Two, 950
Battery voltage (DC)	12

Fuel

Fuel System	
Fuel supply line, min. ID, mm (in.)	13 (0.50)
Fuel return line, min. ID, mm (in.)	8 (0.31)
Max. lift, engine-driven fuel pump, m (ft.)	2.1 (6.8)
Max. fuel flow, Lph (gph)	335 (88.5)
Fuel prime pump	N/A
Fuel filter: quantity, type	2, Primary/Secondary
Recommended fuel	#2 Diesel

Lubrication

Lubricating System	
Type	Full Pressure
Oil pan capacity, L (qt.)	30 (32)
Oil pan capacity with filter, L (qt.)	36 (38)
Oil filter: quantity, type	2, Cartridge
Oil cooler	Water-Cooled

Application Data

Cooling

Radiator System

Ambient temperature, °C (°F)	50 (122)
Engine jacket water capacity, L (gal.)	22.7 (6.0)
Radiator system capacity, including engine, L (gal.)	45.4 (12)
Engine jacket water flow, Lpm (gpm)	363 (96)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	131 (7445)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	86 (4900)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	965 (38)
Fan, kWm (HP)	22 (30)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)

Operation Requirements

Air Requirements

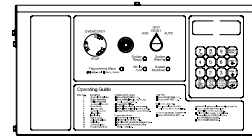
Radiator-cooled cooling air, m ³ /min. (scfm)*	561 (19800)
Combustion air, m ³ /min. (cfm)	33 (1160)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	88 (5024)
Alternator, kW (Btu/min.)	24 (1380)

* Air density = 1.20 kg/m³ (0.075 lbm/ft³)

Fuel Consumption

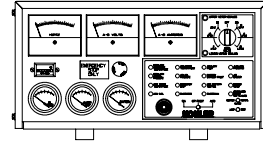
Diesel, Lph (gph) at % load	Standby Rating
100%	102.2 (27.0)
75%	81.0 (21.4)
50%	55.3 (14.6)
25%	29.5 (7.8)
Diesel, Lph (gph) at % load	Prime Rating
100%	92.7 (24.5)
75%	71.9 (19.0)
50%	49.2 (13.0)
25%	26.5 (7.0)

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.

Standard Features

- Alternator Protection (standard with 550 controller)
- Battery Rack and Cables
- Electronic, Isochronous Governor
- Oil Drain Extension

Available Accessories

Enclosed Unit

- ☐ Sound Enclosure
- ☐ Weather Enclosure
- ☐ Weather Housing

Open Unit

- ☐ Exhaust Silencer, Hospital (kit: PA-354905)
- ☐ Exhaust Silencer, Critical (kit: PA-354880)
- ☐ Flexible Exhaust Connector, Stainless Steel

Cooling System

- ☐ Block Heater
- ☐ Radiator Duct Flange

Fuel System

- ☐ Flexible Fuel Lines
- ☐ Fuel Pressure Gauge
- ☐ Fuel/Water Separator with Prime Feature
- ☐ Hand Primer Pump
- ☐ Subbase Fuel Tanks
- ☐ Subbase Fuel Tank with Day Tank

Electrical System

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

Engine and Alternator

- ☐ Air Cleaner, Heavy Duty
- ☐ Air Cleaner Restriction Indicator
- ☐ Alternator Strip Heater
- ☐ Bus Bar Kits
- ☐ Crankcase Emission Canister
- ☐ Line Circuit Breaker (NEMA1 enclosure)
- ☐ Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)
- ☐ Optional Alternators
- ☐ Rated Power Factor Testing
- ☐ Safeguard Breaker (not available with 550 controller)
- ☐ Skid End Caps

Paralleling System

- ☐ Reactive Droop Compensator
- ☐ 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

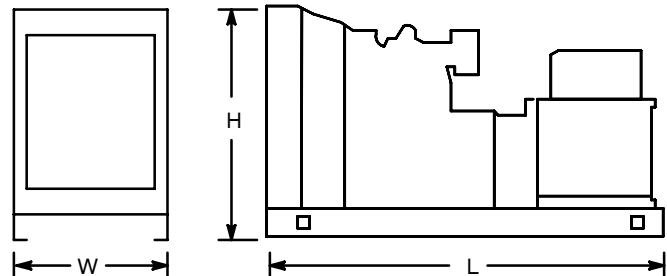
- ☐ Common Failure Relay Kit
- ☐ Communications Products and PC Software (550 controller only)
- ☐ Customer Connection Kit
- ☐ Dry Contact Kit (isolated alarm)
- ☐ Engine Prealarm Sender Kit
- ☐ Remote Annunciator Panel
- ☐ Remote Audiovisual Alarm Panel
- ☐ Remote Emergency Stop Kit
- ☐ Remote Mounting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

Miscellaneous Accessories

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

Dimensions and Weights

Overall Size, L x W x H, mm (in.): 3680 x 1325 x 2008
 (144.9 x 52.2 x 79.0)
 Weight (radiator model), wet, kg (lb.): 3266 (7200)



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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