



**Ratings Range**

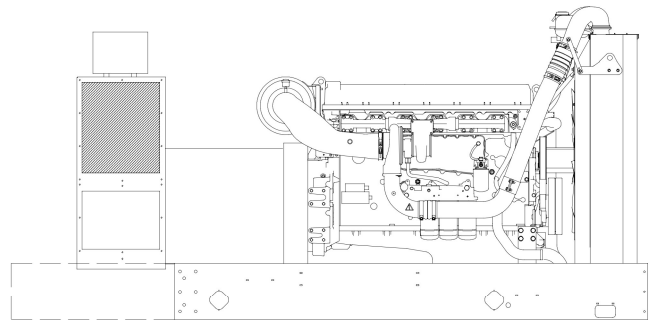
		60 Hz	50 Hz
Standby:	kW	440-515	364-440
	kVA	550-644	455-550
Prime:	kW	435-460	328-400
	kVA	544-575	410-500

**Generator Set Ratings**

Alternator	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	380/475	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	380/475	360/450	
5M4027	240/416	3	50	380/475	364/455	352/440	328/410	
	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	
5M4028	230/400	3	50	436/545	424/530	400/500	392/490	
	240/416	3	50	424/530	408/510	400/500	372/465	
	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	
5M4030	120/208	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	
	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	
5M4032	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	
	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	
5M4162	277/480	3	60	515/644	515/644	460/575	460/575	
	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	
	5M4164	220/380	3	60	500/625	485/606	455/569	455/569
	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 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 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.
  - 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.



**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 0.4% per 100 m (328 ft.) elevation above 1400 m (4593 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	Alternator
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Permanent-Magnet
Leads: quantity, type	10/12, 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 (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, 380 V 5M4024 (10 lead)	1350 (60Hz), 880 (50Hz)
480 V, 380 V 5M4027 (12 lead)	1575 (60Hz), 1100 (50Hz)
480 V, 380 V 5M4028 (10 lead)	1800 (60Hz), 1250 (50Hz)
480 V, 380 V 5M4030 (10 lead)	1800 (60Hz), 1125 (50Hz)
480 V, 380 V 5M4032 (10 lead)	2200 (60Hz), 1400 (50Hz)
380 V 5M4162 (4 lead)	2100 (60Hz)
380 V 5M4164 (4 lead)	2300 (60Hz)
600 V 5M4270 (4 lead)	1250 (60Hz)
600 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 alternator 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  $\pm 0.25\%$  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	Volvo TAD1641GE	
Engine model	D500 16.1B65	
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	16.5:1	
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)	484 (649)
Cylinder head material	Cast Iron	
Piston: type, material	Swirl Chamber, Graphite-Coated Aluminum	
Crankshaft material	Forged Steel	
Valve material	Nimonic	
Governor: type, make/model	EMS II	
Frequency regulation, no-load to full-load	Isochronous	
Frequency regulation, steady state	$\pm 0.25\%$	
Frequency	Field-Convertible	
Air cleaner type, all models	Dry	

### Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)	110.4 (3899)	92.0 (3249)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	478 (893)	455 (851)
Maximum allowable back pressure, kPa (in. Hg)	10 (3.0)	
Engine exhaust outlet size, 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		80
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	60 Hz	50 Hz
Fuel supply line, min. ID, mm (in.)	8 (0.31)	
Fuel return line, min. ID, mm (in.)	6 (0.25)	
Max. lift, engine-driven fuel pump, m (ft.)	3.0 (9.8)	
Max. fuel flow, Lph (gph)	204.4 (54)	181.7 (48)
Fuel prime pump	Manual	
Fuel filter: quantity, type	2, Primary, 10 Micron/Secondary w/Water Separator, 3 Microns	
Recommended fuel	#2 Diesel	

### Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, L (qt.)	42.0 (44.4)	
Oil pan capacity with filter, L (qt.)	48.1 (50.8)	
Oil filter: quantity, type	3, Cartridge	
Oil cooler	Water-Cooled	

# Application Data

## Cooling

Radiator System	60 Hz	50 Hz
Ambient temperature, °C (°F)*	50 (122)	
Engine jacket water capacity, L (gal.)	39.2 (8.7)	
Radiator system capacity, including engine, L (gal.)	60 (15.9)	
Engine jacket water flow, Lpm (gpm)	463.3 (122.4)	383.8 (101.4)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	231 (13137)	184 (10469)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	147 (8360)	110 (6256)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	890 (35)	
Fan, kWm (HP)	19 (25.5)	11 (14.7)
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 and weather housing with external silencer reduce ambient temperature capability by 5°C (9°F).

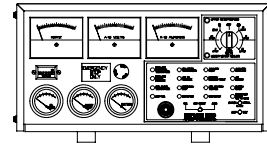
## Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm)†	598 (21120)	488 (17248)
Combustion air, m <sup>3</sup> /min. (cfm)	46 (1617)	38 (1342)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	24 (1365)	20 (1137)
Alternator, kW (Btu/min.)	29 (1660)	26 (1480)

† 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%	139.3 (36.8)	113.6 (30.0)
75%	101.4 (26.8)	83.6 (22.1)
50%	68.1 (18.0)	56.0 (14.8)
25%	38.6 (10.2)	30.7 (8.1)
<b>Diesel, Lph (gph) at % load</b>	<b>Prime Rating</b>	
100%	121.9 (32.2)	103.0 (27.2)
75%	89.7 (23.7)	76.5 (20.2)
50%	60.6 (16.0)	51.5 (13.6)
25%	33.7 (8.9)	28.0 (7.4)

# Controllers

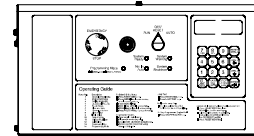


### Decision-Maker® 3+ Controller

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.

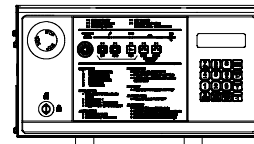


### Decision-Maker® 550 Controller

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.

## Standard Features

- Alternator Protection  
 (standard with Decision-Maker® 550 and 6000 controllers)
- Battery Rack and Cables
- Customer Connection  
 (standard with Decision-Maker® 6000 controller)
- Oil Drain Extension
- Operation and Installation Literature

## Available Options

### Approvals and Listings

- CSA Approval
- IBC Seismic Certification
- UL 2200 Listing

### Enclosed Unit

- Sound Enclosure/Fuel Tank Packages
- Weather Enclosure/Fuel Tank Packages
- Weather Housing

### Open Unit

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

### Fuel System

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

### Controller

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

### Cooling System

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

### Electrical System

- Alternator Strip Heater
- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater
- Bus Bar
- Line Circuit Breaker (NEMA1 enclosure)

- Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)
- Safeguard Breaker (Decision-Maker® 3+ controller only)

### Paralleling System

- Manual Speed Adjust (Decision-Maker® 550 controller only)
- 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
- Closed Crankcase Ventilation
- Engine Fluids (oil and coolant) Added
- Rated Power Factor Testing

### Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

### Warranty

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

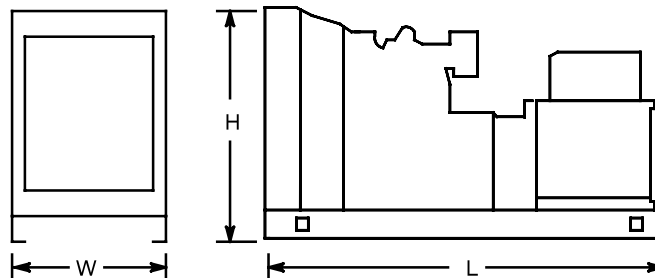
### Other Options

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

## Dimensions and Weights

Overall Size, L x W x H, mm (in.): 3498 x 1325 x 1923  
 (137.72 x 52.17 x 75.71)  
 Weight (radiator model), wet, kg (lb.): 3510 (7738)

Note: See ADV drawing for specific dimensions based on accessory selections.



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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