



Tier 2 EPA-Certified for Stationary Emergency Applications

Ratings Range

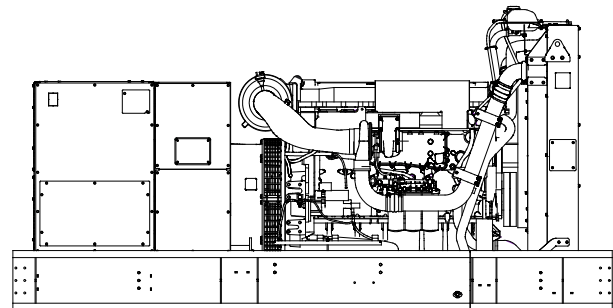
		60 Hz		50 Hz	
		kW	kVA	kW	kVA
Standby:		405-515	506-644	364-440	455-550
Prime:		405-460	506-575	328-400	410-500

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
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
	220/380	3	60	405/506	405/506	405/506	405/506
	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	440/550	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	
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 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.



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
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	Volvo	
Engine model	TAD1641GE	
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 ³ /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. fuel flow, Lph (gph)	204.4 (54)	181.7 (48)
Max. fuel pump restriction, kPa (in. Hg)	30 (8.9)	
Max. return line restriction, kPa (in. Hg)	20 (5.9)	
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	
§ Kohler recommends the use of Kohler Genuine oil and filters.		

Application Data

Cooling

Radiator System	60 Hz	50 Hz
Ambient temperature, °C (°F)*	50 (122)	
Engine jacket water capacity, L (gal.):		
IBC	33 (8.7)	
Non-IBC	39.7 (10.5)	
Radiator system capacity, including engine, L (gal.):		
IBC	60 (15.9)	
Non-IBC	67 (17.7)	
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 ₂ 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).

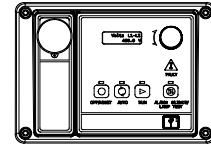
Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m ³ /min. (scfm)†	598 (21120)	488 (17248)
Combustion air, m ³ /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/m³ (0.075 lbm/ft³)

Fuel Consumption	60 Hz	50 Hz
Diesel, Lph (gph) at % load	Standby Rating	
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)
Diesel, Lph (gph) at % load	Prime Rating	
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

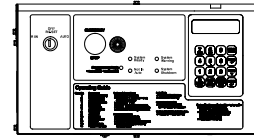


APM402 Controller

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.

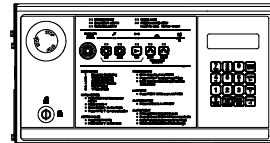


Decision-Maker® 550 Controller

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
- Battery Rack and Cables
- Customer Connection (standard with Decision-Maker® 6000 controller)
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature

Available Options

Approvals and Listings

- CSA Certified
- IBC Seismic Certification
- UL 2200 Listing

Enclosed Unit

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

Open Unit

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

Fuel System

- Flexible Fuel Lines, Rubber
- Flexible Fuel Lines, Stainless Steel
- Fuel Pressure Gauge

Controller

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

Cooling System

- Block Heater, 4000 W, 190/208 V, 1 Ph
- Block Heater, 4000 W, 210/240 V, 1 Ph
- Block Heater, 4000 W, 380/480 V, 1 Ph
Required for ambient temperatures below 0°C (32°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)

Paralleling System

- Remote Voltage Adjustment Control (Decision-Maker® 550 controller only)
- Voltage Sensing (Decision-Maker® 6000 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 Limited Warranty
- 2-Year Prime Limited Warranty
- 5-Year Basic Limited Warranty
- 5-Year Comprehensive Limited Warranty
- 10-Year Major Components Limited Warranty

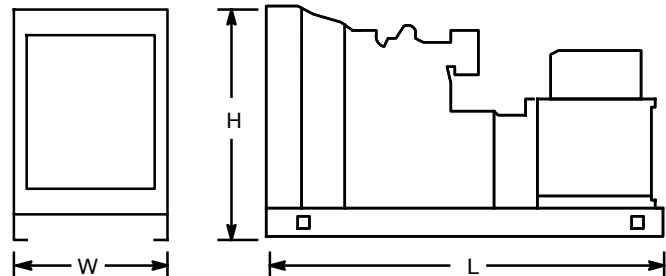
Other Options

- _____
- _____
- _____
- _____
- _____

Dimensions and Weights

Overall Size, L x W x H, mm (in.): 4229 x 1939 x 1942
 (166.5 x 76.3 x 76.5)
 Weight (radiator model), wet, kg (lb.): 4082 (9000)

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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