KOHLER®

Model: 500REOZVC

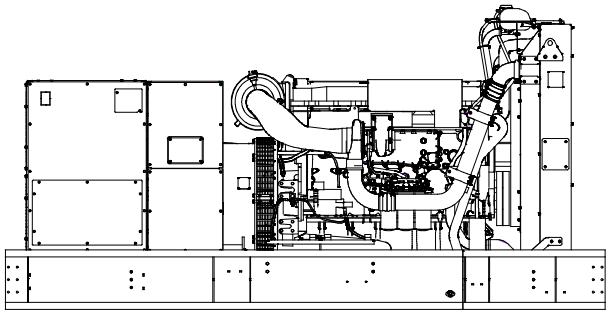
190- 600 V Diesel

ISO 9001 KOHLER® NATIONALLY REGISTERED

Tier 2 EPA-Certified for Stationary Emergency Applications

Ratings Range

		60 Hz
Standby:	**kW**	400- 515
	kVA	500- 644
Prime:	**kW**	400- 460
	kVA	500- 575



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.

Generator Set Ratings

				150°C Rise Standby Rating		130°C Rise Standby Rating		125°C Rise Prime Rating		105°C Rise Prime Rating	
Alternator	**Voltage**	**Ph**	**Hz**	**kW/kVA**	**Amps**	**kW/kVA**	**Amps**	**kW/kVA**	**Amps**	**kW/kVA**	**Amps**
5M4024	120/208	3	60	450/562	1562	440/550	1527	440/550	1527	435/544	1510
	127/220	3	60	465/581	1526	465/581	1526	450/562	1477	450/562	1477
	139/240	3	60	505/631	1519	475/594	1429	450/562	1354	450/562	1354
	220/380	3	60	400/500	760	400/500	760	400/500	760	400/500	760
	240/416	3	60	450/562	781	440/550	764	440/550	764	435/544	755
	277/480	3	60	505/631	760	475/594	715	450/562	677	450/562	677
5M4027	120/208	3	60	500/625	1735	475/594	1649	450/562	1562	445/556	1544
	127/220	3	60	505/631	1657	500/625	1641	450/562	1477	450/562	1477
	139/240	3	60	505/631	1519	505/631	1519	450/562	1354	450/562	1354
	220/380	3	60	405/506	770	405/506	770	405/506	770	405/506	770
	240/416	3	60	500/625	868	475/594	825	450/562	781	445/556	772
	277/480	3	60	505/631	760	505/631	760	450/562	677	450/562	677
5M4028	120/208	3	60	510/638	1770	510/638	1770	455/569	1579	455/569	1579
	127/220	3	60	510/638	1674	510/638	1674	455/569	1493	455/569	1493
	139/240	3	60	510/638	1534	510/638	1534	455/569	1369	455/569	1369
	220/380	3	60	470/588	893	470/588	893	455/569	865	455/569	865
	240/416	3	60	510/638	885	510/638	885	455/569	790	455/569	790
	277/480	3	60	510/638	767	510/638	767	455/569	685	455/569	685
5M4030	120/208	3	60	510/638	1770	510/638	1770	455/569	1579	455/569	1579
	127/220	3	60	510/638	1674	510/638	1674	455/569	1493	455/569	1493
	139/240	3	60	515/644	1549	510/638	1534	460/575	1384	455/569	1369
	220/380	3	60	485/606	922	485/606	922	455/569	865	455/569	865
	240/416	3	60	510/638	885	510/638	885	455/569	790	455/569	790
	277/480	3	60	515/644	775	510/638	767	460/575	692	455/569	685
5M4032	120/208	3	60	515/644	1787	515/644	1787	460/575	1597	460/575	1597
	127/220	3	60	515/644	1690	515/644	1690	460/575	1509	460/575	1509
	139/240	3	60	515/644	1549	515/644	1549	460/575	1384	460/575	1384
	220/380	3	60	510/638	969	510/638	969	460/575	874	455/569	865
	240/416	3	60	515/644	894	515/644	894	460/575	799	460/575	799
	277/480	3	60	515/644	775	515/644	775	460/575	692	460/575	692
5M4162	220/380	3	60	500/625	950	485/606	922	455/569	865	455/569	865
5M4164	220/380	3	60	510/638	969	515/644	979	455/569	865	455/569	865
5M4270	347/600	3	60	500/625	602	505/631	608	450/562	542	450/562	542
5M4272	347/600	3	60	510/638	614	510/638	614	455/569	548	455/569	548

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
480 V, 380 V	5M4027 (12 lead)	1575
480 V, 380 V	5M4028 (10 lead)	1800
480 V, 380 V	5M4030 (10 lead)	1800
480 V, 380 V	5M4032 (10 lead)	2200
380 V	5M4162 (4 lead)	2100
380 V	5M4164 (4 lead)	2300
600 V	5M4270 (4 lead)	1250
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 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	
Engine manufacturer	Volvo
Engine model	TAD1641GE- B
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	17:1
Piston speed, m/min. (ft./min.)	594 (1949)
Main bearings: quantity, type	7, Precision Half-Shell
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	565 (757)
Cylinder head material	Cast Iron
Piston: type, material	Steel
Crankshaft material	Forged Steel
Valve material	Nimonic
Governor: type, make/model	EMS 2.4
Frequency regulation, no-load to full-load	Isochronous
Frequency regulation, steady state	±0.25%
Frequency	Field-Convertible
Air cleaner type, all models	Dry

Exhaust

Exhaust System	
Exhaust flow at rated kW, m^3/min. (cfm)	110.4 (3899)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	478 (893)
Maximum allowable back pressure, kPa (in. Hg)	10 (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	80
Starter motor rated voltage (DC)	24 V, 7kW
Battery, recommended cold cranking amps (CCA):	
Qty., CCA rating each	Two, 925
Battery voltage (DC)	12

Fuel

Fuel System	
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)
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	
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	
Ambient temperature, °C (°F)*	50 (122)
Engine jacket water capacity, L (gal.):	39.7 (10.5)
Radiator system capacity, including engine, L (gal.):	67 (17.7)
Engine jacket water flow, Lpm (gpm)	463.3 (122.4)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	231 (13137)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	147 (8360)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	890 (35)
Fan, kWm (HP)	19 (25.5)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H_2O)	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).

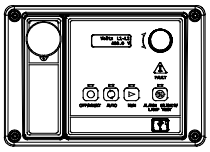
Operation Requirements

Air Requirements	
Radiator-cooled cooling air, m^3/min. (scfm)†	598 (21120)
Combustion air, m^3/min. (cfm)	46 (1617)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	24 (1365)
Alternator, kW (Btu/min.)	29 (1660)

† Air density = 1.20 kg/m^3 (0.075 lbm/$ft^{3)}$

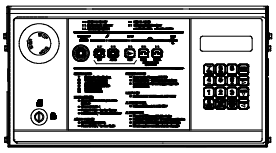
Fuel Consumption	
Diesel, Lph (gph) at % load	**Standby Rating**
100%	139.3 (36.8)
75%	101.4 (26.8)
50%	68.1 (18.0)
25%	38.6 (10.2)
Diesel, Lph (gph) at % load	**Prime Rating**
100%	121.9 (32.0)
75%	89.7 (23.7)
50%	60.6 (16.0)
25%	33.7 (8.9)

Controllers



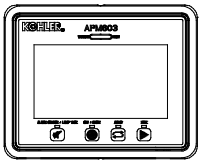
APM402 Controller
Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.
- Digital display and menu control provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or 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® 6000 Paralleling Controller
Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities for paralleling multiple generator sets.
- Paralleling capability to control up to 8 generators on an isolated bus with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
  Note: Parallel with other Decision-Maker® 6000 controllers only
- 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.



APM603 Controller
Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.
- 7-inch graphic display with touch screen and menu control provides easy local data access
- Measurements are selectable in metric or English units
- Paralleling capability to control up to 8 generators on an isolated bus with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
  Note: Parallel with other APM603 controllers only
- Generator management to turn paralleled generators off and on as required by load demand
- Load management to connect and disconnect loads as required
- Controller supports Modbus® RTU, Modbus® TCP, SNMP and BACnet®
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- UL-listed overcurrent protective device
- NFPA 110 Level 1 capability

Refer to G6-162 for additional controller features and accessories.

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KOHLER CO., Kohler, Wisconsin 53044 USA
Phone 920-457-4441, Fax 920-459-1646
For the nearest sales and service outlet in the US and Canada, phone 1-800-544-2444
KOHLERPower.com

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

Circuit Breakers

Type

- ❑ Magnetic Trip
- ❑ Thermal Magnetic Trip
- ❑ Electronic Trip (LI)
- ❑ Electronic Trip with Short Time (LSI)
- ❑ Electronic Trip with Ground Fault (LSIG)

Rating

- ❑ 80%
- ❑ 100%

Operation

- ❑ Manual
- ❑ Electrically Operated (for paralleling)

Circuit Breaker Mounting

- ❑ Generator Mounted
- ❑ Remote Mounted
- ❑ Bus Bar (for remote mounted breakers)

Approvals and Listings

- ❑ CSA Certified
- ❑ UL 2200 Listing
- ❑ Hurricane Rated Enclosure

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® 6000 and APM603 controllers only)
- ❑ Communications Products and PC Software
- ❑ Decision-Maker® Paralleling System (DPS) (Decision-Maker® 6000 controller only)
- ❑ Dry Contact (isolated alarm) (Decision-Maker® 6000 controller only)
- ❑ Two Input/Five Output Module (APM402 controller only)
- ❑ Four Input/Fifteen Output Module (APM603 controller only)
- ❑ Remote Audiovisual Alarm Panel (Decision-Maker® 6000 only)
- ❑ Remote Emergency Stop
- ❑ Remote Mounting Cable
- ❑ Remote Serial Annunciator Panel
- ❑ Run Relay (standard with APM603, optional with others)
- ❑ Manual Key Switch (APM603 controller only)
- ❑ Manual Speed Adjust (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

- ❑ 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

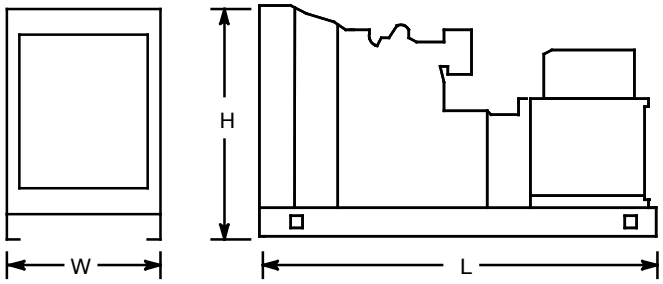
Warranty

- ❑ 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

Dimensions and Weights

Overall Size, L x W x H, mm (in.):	4229 x 1829 x 1942 (166.5 x 72.0 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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