

Model: 2000REOZM

KOHLER Power Systems

380 - 480 V

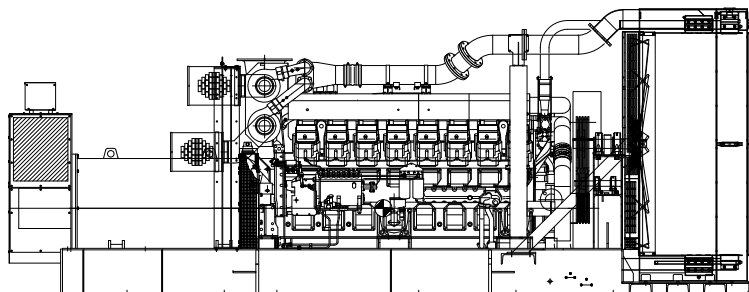
4-Cycle
Diesel



Tier 1 EPA-Certified for Stationary Emergency Applications

Ratings Range

		60 Hz	50 Hz
Standby:	kW	2000	1800
	kVA	2500	2250
Prime:	kW	1818	1635
	kVA	2273	2044
DCC :	kW	1818	1635
	kVA	2273	2044



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 the 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 NFPP 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- A standard 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) provides superior short-circuit capability.
 - The brushless, rotating-field alternator has broad range reconnectability.
- Other features:
 - Kohler designed controllers for guaranteed system integration and remote communication. See Controllers on page 3.
 - The low coolant level shutdown prevents overheating (standard on radiator models only).
 - An electronic, isochronous governor delivers precise frequency regulation.
 - Multiple circuit breaker configurations.

Alternator	Voltage	Ph	Hz	150°C Rise Standby Rating		125°C Rise Prime Rating		125°C Rise DCC Rating	
				kW/kVA	Amps	kW/kVA	Amps	kW/kVA	Amps
7M4056	220/380	3	50	1800/2250	3419	1635/2044	3105	1635/2044	3105
	220/400	3	50	1800/2250	3248	1635/2044	2950	1635/2044	2950
	240/416	3	50	1800/2250	3123	1635/2044	2837	1635/2044	2837
7M4176	220/380	3	60	2000/2500	3799	1818/2273	3453	1818/2273	3453
7M4054	277/480	3	60	2000/2500	3007	1818/2273	2734	1818/2273	2734

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. DCC : Data Center Continuous Power ratings apply to Data Center installations where a reliable utility power is available and comply with Uptime institute Tier III and IV requirements. At constant or varying load, the number of generator set operating hours is unlimited. Average load: ≤ 100%. For limited running time and base load 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.

This document is not contractual - Kohler Co. reserves the right to modify any of the characteristics without notice, in a constant effort to improve the quality of its products.

Alternator Specifications

Specifications	Generator
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	125°C Prime, 150°C Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Rotor balancing	125% 60 Hz, 150% 50Hz
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 7M4054 (4 bus bar)	7000 (60 Hz)
380 V 7M4056 (4 bus bar)	5200 (50 Hz)
380 V 7M4176 (4 bus bar)	5400 (60 Hz)

- 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 two-thirds pitch windings and skewed stator.
- 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	S16R-Y1PTAA2-1	S16R-Y1PTAA2-3
Engine type	4-Cycle, Turbocharged, Air-to-air charge cooled	
Cylinder arrangement	16-V	
Displacement, L (cu. in.)	65.4 (3989)	
Bore and stroke, mm (in.)	170 x 180 (6.69 x 7.09)	
Compression ratio	14.0:1	
Piston speed, m/min. (ft./min.)	648 (2126)	540 (1772)
Main bearings: quantity, type	7, Precision Half-Shell	
Rated rpm	1800	1500
Max. power at rated rpm, kWm (BHP)	2150 (2882)	1939 (2599)
Cylinder head material	Cast Iron	
Crankshaft material	Forged Steel	
Governor: type, make/model	Electronic, Woodward PROACT II	
Frequency regulation, no-load to full-load	Isochronous	
Frequency regulation, steady state	±0.25%	
Frequency	Fixed	
Air cleaner type, all models	Dry	

Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust manifold type	Dry	
Exhaust flow at rated kW, m ³ /min. (cfm)	478 (16878)	434 (15325)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	519 (966)	536 (997)
Maximum allowable back pressure, kPa (in. Hg)	5.9 (1.7)	
Exhaust outlet size at engine hookup, 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	30	
Starter motor rated voltage (DC)	Dual, 24	
Battery, recommended cold cranking amps (CCA):		
Qty., CCA rating	4, 1000	
Battery voltage (DC)	12	

Fuel

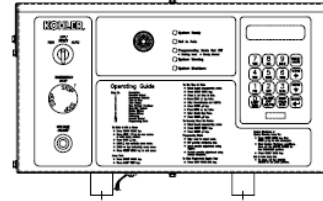
Fuel System	60 Hz	50 Hz
Fuel supply line, min. ID, mm (in.)	25 (1.0)	
Fuel return line, min. ID, mm (in.)	19 (0.75)	
Max. lift, engine-driven fuel pump, m (ft.)	1 (3)	
Max. fuel flow, Lph (gph)	660 (175)	560 (148)
Max. fuel pump restriction, kPa (in. Hg)	10 (3.0)	
Fuel filter: quantity, type	4, Secondary	
Recommended fuel	#2 Diesel	

Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, L (qt.)	200 (211)	
Oil pan capacity with filter, L (qt.)	230 (243)	
Oil filter: quantity, type	4, Cartridge	
Oil Cooler	Water-Cooled	

Controllers

Application Data



Cooling

Radiator System	60 Hz	50 Hz
Ambient temperature	40 (104)	
Engine jacket water capacity, L (gal.)	170 (44.9)	
Radiator system capacity, including engine, L (gal.)	401 (106)	
Engine jacket water flow, Lpm (gpm)	1850 (489)	1650 (436)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	686 (38999)	623 (35401)
Heat rejected to charged cooling water at rated kW, dry exhaust, kW (Btu/min.)	633 (36000)	575 (32677)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	1800 (70.9)	
Fan, kWm (HP)	56.8 (76.2)	43.5 (58.4)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)	

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.

Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m ³ /min. (scfm) ~	2142 (75540)	2064 (72900)
Combustion air, m ³ /min. (cfm)	181 (6391)	164 (5791)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	158 (9000)	144 (8169)
Alternator, kW (Btu/min.)		97 (5516)
~ Air density = 1.20 kg/m ³ (0.075 lbf/ft ³)		

Fuel Consumption	60 Hz	50 Hz
Diesel, Lph (gph) at % load	Standby Rating	
100%	509 (134.5)	462 (122.1)
75%	381 (100.6)	338 (89.2)
50%	261 (69.0)	231 (61.0)
25%	147 (38.9)	128 (33.9)
Diesel, Lph (gph) at % load	Prime Rating	
100%	461 (121.9)	415 (109.7)
75%	348 (92.0)	309 (81.5)
50%	243 (64.2)	214 (56.5)
25%	142 (37.4)	122 (32.2)

Standard Features and Accessories

Additional Standard Features

- Alternator Protection
- Electronic, Isochronous Governor
- Oil Drain Extension
- Operation and Installation Literature
- Pilot-Excited, Permanent Magnet Generator (PMG)

Accessories

Open Unit

- Exhaust Silencer, Hospital
- Exhaust Silencer, Critical
- Exhaust Silencer, Residential
- Exhaust Silencer, Industrial
- Flexible Exhaust Connector, Stainless Steel

Cooling System

- Block Heater
[recommended for ambient temperatures below 20°C (68°F)]
- Radiator Duct Flange

Fuel System

- Flexible Fuel Lines
- Fuel Pressure Gauge
- Subbase Fuel Tank with Day Tank

Electrical System

- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater
- Battery Rack and Cables

Engine and Generator

- Air Cleaner, Heavy Duty
- Air Cleaner Restriction Indicator
- Bus Bar Kits (standard on 7M generators, 380-600 volt only)
- Crankcase Emissions Canister
- Fuel/Water Separator
- Generator Strip Heater
- Line Circuit Breaker (NEMA1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)
- NFPA 110 Literature
- Oil Temperature Gauge
- Rated Power Factor Testing
- Spring Isolators

Paralleling System

- Load-Sharing Module
- Voltage Adjustment Control (manual)

Maintenance and Literature

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

Controller

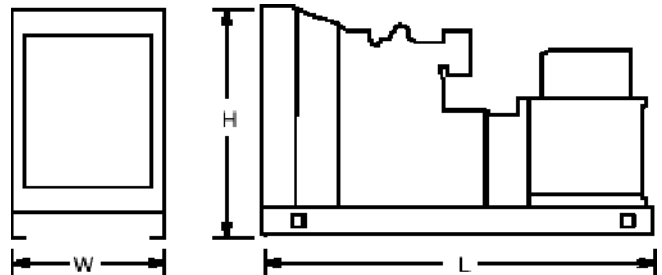
- Common Failure Relay Kit
- Communications Products and PC Software
- Customer Connection Kit
- Dry Contact Kit (isolated alarm)
- Remote Annunciator Panel
- Remote Audiovisual Alarm Panel
- Remote Emergency Stop Kit
- Remote Mounting Cable
- Run Relay Kit

Miscellaneous Accessories

- _____
- _____
- _____
- _____
- _____
- _____
- _____

Dimensions and Weights

Overall Size, L x W x H, mm (in.): 6485 x 2216 x 2507
 (255.3 x 87.2 x 98.7)
 Weight (radiator model), wet, max., kg (lb.): 15300 (33700)



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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