

Model: 1600REOZM

KOHLER

380-480 V

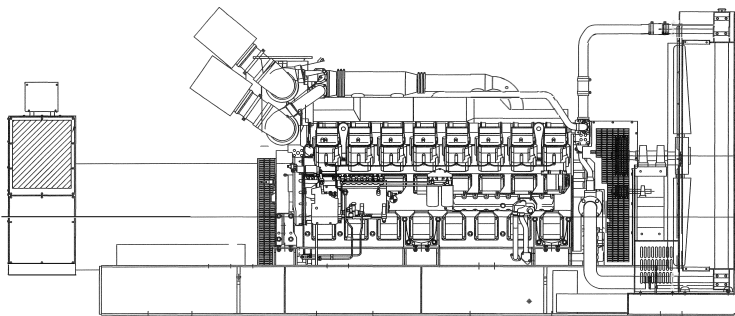
4-Cycle Diesel



Tier 1 EPA-Certified for Stationary Emergency Applications

Ratings Range

		60 Hz	50 Hz
Standby:	kW	1625-1630	1380-1480
	kVA	2031-2038	1725-1850
Prime:	kW	1480	1280-1420
	kVA	1850	1600-1775
DCC :	kW	1480	1280-1420
	kVA	1850	1600-1775



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 generator set complies with ISO 8528-5, Class G3 requirements for transient performance.
- The generator set accepts rated load in one step.
- 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) alternator provides superior short-circuit capability
 - The brushless, rotating-field generator 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.

Generator Ratings

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
7M4052	220/380	3	50	1480/1850	2811	1420/1775	2696	1420/1775	2696
	230/400	3	50	1448/1810	2613	1348/1685	2432	1348/1685	2432
	240/415	3	50	1380/1725	2400	1280/1600	2226	1280/1600	2226
	277/480	3	60	1630/2038	2451	1480/1850	2225	1480/1850	2225
7M4174	220/380	3	60	1625/2031	3086	1480/1850	2810	1480/1850	2810

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 rating guidelines and complete ratings definitions. **GENERAL GUIDELINES FOR DERATION :** Altitude: Derate 5.0 % per 500 m (1640 ft) elevation above 1000 m (3280 ft) up to maximum altitude of 4000 m (13120 ft). Temperature: Derate 6.0 % per 10°C (18°F) temperature above 40°C (104°F) up to maximum temperature of 60° C (140° F). The generator set manufacturer reserves the right to change the design and specifications without notice and without any obligation or liability whatsoever.

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, 380 V 7M4052 (4 bus bar) . .	5500 (60Hz), 4000 (50Hz)
380 V 7M4174 (4 bus bar) . .	4200 (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 generator 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 ±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-Y1 PTA-2	S16R-Y1 PTA-4
Engine type	4-Cycle, Turbocharged, Intercooled	
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	15.0:1	
Piston speed, m/min. (ft./min.)	648 (2126)	540 (1772)
Main bearings: quantity, type	-	
Rated rpm	1800	1500
Max. power at rated rpm, kWm (BHP)	1750 (2346)	1701 (2280)
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)	404 (14265)	385 (13594)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	520 (968)	519 (966)
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)	560 (148)	510 (135)
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

Application Data

Cooling

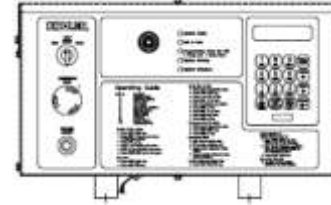
Radiator System	60 Hz	50 Hz
Ambient temperature	40 (104)	
Engine jacket water capacity, L (gal.)	170 (44.9)	
Radiator system capacity, including engine, L (gal.)	250 (66.1)	315 (83.3)
Engine jacket water flow, Lpm (gpm)	1850 (489)	1650 (436)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	1135 (64532)	1063 (60452)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	1800 (70.9)	
Fan, kWm (HP)	45 (60)	45 (60)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)	

Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m ³ /min. (scfm) ~	2435 (86000)	2311 (81600)
Combustion air, m ³ /min. (cfm)	155 (5473)	146 (5155)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	135 (7744)	127 (7254)
Generator, kW (Btu/min.)	82 (4663)	
~ Air density = 1.20 kg/m ³ (0.075 lbm/ft ³)		

Fuel Consumption	60 Hz	50 Hz
Diesel, Lph (gph) at % load	Standby Rating	
100%	430 (113.7)	383 (101.4)
75%	321 (84.9)	283 (74.8)
50%	224 (59.1)	195 (51.5)
25%	127 (33.6)	109 (28.8)
Diesel, Lph (gph) at % load	Prime Rating	
100%	389 (102.8)	344 (91.1)
75%	295 (77.9)	258 (68.3)
50%	209 (55.2)	180 (47.7)
25%	124 (32.8)	105 (27.7)

Controllers



Decision-Maker® 550 Controller

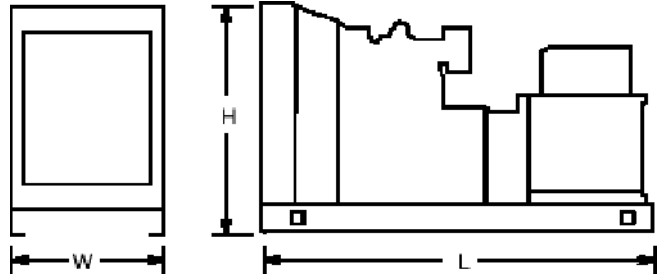
Audiovisual annunciation with NFPA 110 Level 1 capability. Programmable microprocessor logic and digital display features. Generator safeguard circuit protection. 12- or 24-volt engine electrical system capability. Remote start, remote annunciation, and remote communication options. Refer to G6-46 for additional controller features and accessories.

Additional Standard Features

- Alternator Protection (standard with Decision-Maker® 550)
- Electronic, Isochronous Governor
- Oil Drain Extension
- Operation and Installation Literature
- Pilot-Excited, Permanent Magnet Generator (PMG)

Dimensions and Weights

Overall Size, L x W x H, mm (in.): 5768 x 2212 x 2516 (227.1 x 87.1 x 99.05)
 Weight (radiator model), wet, max., kg (lb.): 13300 (29296)



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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