

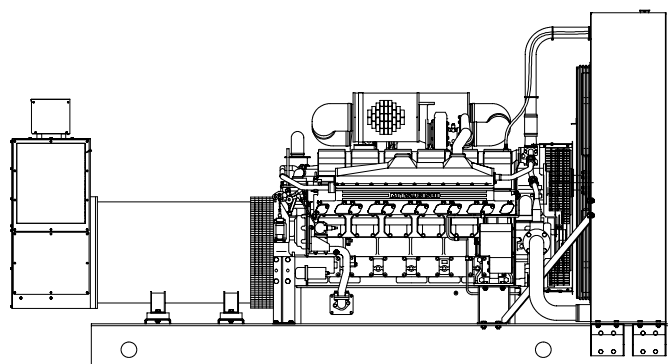
# Model: 1000ROZM

## KOHLER POWER SYSTEMS 380-600 V 4 Cycle Diesel



### Ratings Range

		60 Hz	50 Hz
Standby:	kW	975-1020	820-912
	kVA	1219-1275	1025-1140
Prime:	kW	890-925	768-832
	kVA	1113-1156	960-1040



### 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 accepts rated load in one step.
- The generator set complies with ISO 8528-5, Class G3 requirements for transient performance.
- A one-year limited warranty covers all systems and components. Two-, five-, and ten-year extended warranties are also available.
- Generator features:
  - The brushless, rotating-field generator has broadrange reconnectability.
  - The pilot-excited, permanent-magnet generator (PMG) provides superior short-circuit capability.
- Other features:
  - Controllers are available for all applications. See controller features inside.
  - The low coolant level shutdown prevents overheating (standard on radiator models only).
  - The generator set-to-skid mounting options are either integral vibration isolation or direct mounting with spring isolators.
  - An electronic, isochronous governor delivers precise frequency regulation.

### Generator Ratings

Alternator	Voltage	Ph	Hz	150°C Rise Standby Rating		130°C Rise Standby Rating		125°C Rise Prime Rating		105°C Rise Prime Rating	
				kW/kVA	Amps	kW/kVA	Amps	kW/kVA	Amps	kW/kVA	Amps
5M4044	240/416	3	60	1010/1263	1752	975/1219	1691	920/1150	1596	890/1113	1544
	277/480	3	60	1020/1275	1534	1020/1275	1534	925/1156	1391	925/1156	1391
	220/380	3	50	896/1120	1702	844/1055	1603	816/1020	1550	768/960	1459
	230/400	3	50	904/1130	1631	848/1060	1530	824/1030	1487	768/960	1386
	240/416	3	50	844/1055	1464	820/1025	1423	808/1010	1402	768/960	1332
7M4046	220/380	3	50	912/1140	1732	912/1140	1732	832/1040	1580	832/1040	1580
	230/400	3	50	912/1140	1645	912/1140	1645	832/1040	1501	832/1040	1501
	240/416	3	50	912/1140	1582	912/1140	1582	832/1040	1443	832/1040	1443
7M4170	220/380	3	60	1010/1263	1918	1010/1263	1918	920/1150	1747	920/1150	1747
7M4282	347/600	3	60	1010/1263	1215	1010/1263	1215	920/1150	1107	920/1150	1107
7M4284	347/600	3	60	1010/1263	1215	1010/1263	1215	920/1150	1107	920/1150	1107

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 1.0% per 100 m (328 ft.) elevation above 1500 m (4921 ft.). *Temperature:* Derate 4.0% per 10°C (18°F) temperature above 40°C (104°F).

# Alternator Specifications

Specifications	Alternator
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	130°C, 150°C Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Rotor balancing	125% 60 Hz, 150% 50 Hz
Voltage regulation, no-load to full-load (with <0.5% drift due to temp. variation)	3-phase sensing, $\pm 0.25\%$
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      5M4044 (4 bus bar)	3900 (60 Hz), 2650 (50 Hz)
480 V      7M4046 (4 bus bar)	— (60 Hz), 2650 (50 Hz)
380 V      7M4170 (4 bus bar)	2500 (60 Hz)
600 V      7M4282 (4 bus bar)	1750 (60 Hz)
600 V      7M4284 (4 bus bar)	3200 (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  $\pm 0.25\%$  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
Manufacturer	Mitsubishi	
Engine model	S12H-PTA	
Engine type	4-Cycle, Turbocharged	
Cylinder arrangement	12-V	
Displacement, L (cu. in.)	37.11 (2265)	
Bore and stroke, mm (in.)	150 x 175 (5.91 x 6.89)	
Compression ratio	14.0:1	
Piston speed, m/min. (ft./min.)	630 (2067)	528 (1732)
Main bearings: quantity, type	7, Precision Half-Shell	
Rated rpm	1800	1500
Max. power at rated rpm, kWm (BHP)	1120 (1501)	1020 (1367)
Cylinder head material	Cast Iron	
Crankshaft material	Forged Steel	
Governor: type, make/model	Electronic, Barber-Colman Dyna 8200	
Frequency regulation, no-load to full-load	Isochronous	
Frequency regulation, steady state	$\pm 0.25\%$	
Frequency	Fixed	
Air cleaner type, all models	Dry	

### Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)	245 (8651)	219 (7733)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	510 (950)	550 (1022)
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 above 0°C (32°F)		2, 800
Qty., CCA rating below 0°C (32°F)		4, 920
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.)	25 (1.0)	
Max. lift, engine-driven fuel pump, m (ft.)	1 (3)	
Max. fuel flow, Lph (gph)	1610 (425.3)	1080 (285.3)
Max. fuel pump restriction, kPa (in. Hg)	15 (4.3)	
Fuel filter: quantity, type	4, Cartridge	
Recommended fuel	#2 Diesel	

### Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, L (qt.)	180 (190)	
Oil pan capacity with filter, L (qt.)	200 (211)	
Oil filter: quantity, type	5, 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.)	100 (26.4)	
Radiator system capacity, including engine, L (gal.)	288 (76)	
Engine jacket water flow, Lpm (gpm)	1450 (383)	1200 (317)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	676 (38479)	604 (34352)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	1524 (60)	
Fan, kWm (HP)	41.8 (56)	
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O)	0.125 (0.5)	

Remote Radiator System*	60 Hz	50 Hz
Exhaust manifold type	Dry	
Connection sizes:	Class 150 ANSI Flange	
Water inlet, mm (in.)	191 (7.5) Bolt Circle	
Water outlet, mm (in.)	191 (7.5) Bolt Circle	
Static head allowable above engine, kPa (ft. H <sub>2</sub> O)	88 (29.4)	

\* Contact your local distributor for cooling system options and specifications based on your specific requirements.

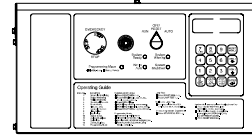
## Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm)†	1730 (61000)	
Cooling air required for generator set when equipped with city water cooling or remote radiator, based on 14°C (25°F) rise, m <sup>3</sup> /min. (scfm)†	484 (17100)	450 (15900)
Combustion air, m <sup>3</sup> /min. (cfm)	93 (3284)	83 (2931)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	81 (4617)	72 (4122)
Generator, kW (Btu/min.)	54 (3050)	53 (3020)

† Air density = 1.20 kg/m<sup>3</sup> (0.075 lbm/ft<sup>3</sup>)

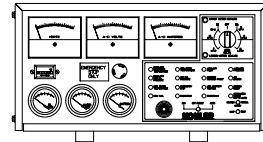
Fuel Consumption	60 Hz	50 Hz
<b>Diesel, Lph (gph) at % load</b>	<b>Standby Rating</b>	
100%	286 (75.4)	258 (68.2)
75%	214 (56.5)	195 (51.5)
50%	147 (38.7)	133 (35.0)
25%	92 (24.3)	72 (18.9)
<b>Diesel, Lph (gph) at % load</b>	<b>Prime Rating</b>	
100%	260 (68.7)	223 (58.9)
75%	195 (51.5)	168 (44.4)
50%	136 (35.9)	116 (30.6)
25%	86 (22.8)	63 (16.7)

# 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.



### Decision-Maker™ 3+, 16-Light Controller

Audiovisual annunciation with NFPA 110 Level 1 capability. Microprocessor logic, AC meters, and engine gauge features. 12- or 24-volt engine electrical system capability. Remote start, prime power, and remote annunciation options. Refer to G6-30 for additional controller features and accessories.

## Standard 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)

### Accessories

#### Open Unit

- ☐ Exhaust Silencer, Hospital (kits: PA-354911, PA-361619)
- ☐ Exhaust Silencer, Critical (kits: PA-354898, PA-354901)
- ☐ Exhaust Silencer, Residential (kits: PA-354899, PA-354900)
- ☐ Exhaust Silencer, Industrial (kits: PA-3549113, PA-354915)
- ☐ Flexible Exhaust Connector, Stainless Steel

#### Enclosed Unit

- ☐ Sound Enclosure (with roof-mounted hospital silencer)
- ☐ Weather Enclosure (with roof-mounted critical silencer)

#### Cooling System

- ☐ Block Heater; Recommended for Ambient Temperatures Below 20°C (68°F)
- ☐ City Water Cooling
- ☐ Radiator Duct Flange
- ☐ Remote Radiator Cooling

#### Fuel System

- ☐ Flexible Fuel Lines
- ☐ Fuel Filter
- ☐ 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)
- ☐ Generator Strip Heater
- ☐ Line Circuit Breaker (NEMA type 1 enclosure)
- ☐ Line Circuit Breaker with Shunt Trip (NEMA type 1 enclosure)
- ☐ NFPA 110 Literature
- ☐ Rated Power Factor Testing
- ☐ Safeguard Breaker (not available with Decision-Maker™ 550)
- ☐ Spring Isolators

#### Paralleling System

- ☐ Load-Sharing Module
- ☐ Reactive Droop Compensator
- ☐ Remote Speed Adjust Control/Electronic Governor
- ☐ Voltage Adjustment Control (manual)
- ☐ Voltage Regulator Relocation Kit

#### Maintenance

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

#### Controller (Decision-Maker™ 550 and Decision-Maker™ 3+)

- ☐ Common Failure Relay Kit
- ☐ Communication Products and PC Software (Decision-Maker™ 550 only)
- ☐ Customer Connection Kit
- ☐ Dry Contact Kit (isolated alarm)
- ☐ Engine Prealarm Sender Kit
- ☐ Remote Annunciator Panel
- ☐ Remote Audiovisual Alarm Panel
- ☐ Remote Emergency Stop Kit
- ☐ Remote Mounting Cable
- ☐ Run Relay Kit

#### Miscellaneous Accessories

- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_

### Dimensions and Weights

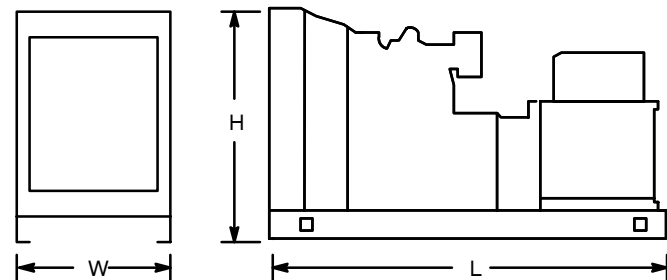
Overall Size, L x W x H, mm (in.):

w/5M4044 4645 x 2047 x 2483 (182.9 x 80.6 x 97.8)

w/7M4046 4535 x 2047 x 2483 (178.5 x 80.6 x 97.8)

w/7M4170, 7M4282, 7M4284 4433 x 2047 x 2483 (174.5 x 80.6 x 97.8)

Weight (radiator model), wet, max., kg (lb.): 9798 (21600)



Note: This drawing is provided for reference only and should not be used for planning the installation. Contact your local distributor for more detailed information.

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