

Model: **1000REZK**

KOHLER Power Systems

416-4160 V

Gas



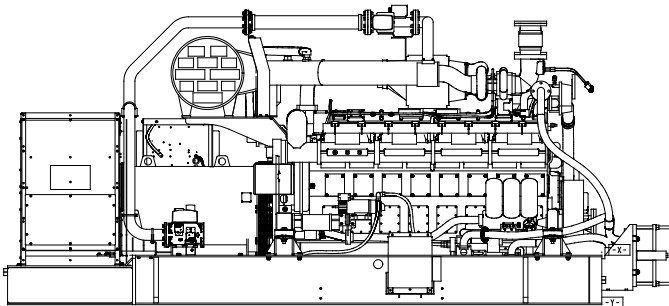
**EPA-Certified for
Stationary Emergency and
Non-Emergency Applications**

Ratings Range

| | | 60 Hz | |
|----------|-----|-----------|--|
| Standby: | kW | 955-1000 | |
| | kVA | 1193-1250 | |
| Prime: | kW | 809-880 | |
| | kVA | 1011-1100 | |

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 65% of rated load in one step.
- The 60 Hz generator set meets NFPA 110 Level 1, Type 60 (for standby operation), when equipped with the necessary accessories and installed per NFPA standards.
- A one-year limited warranty covers all generator set systems and components. Two- and five-year extended limited warranties are also available.
 - The pilot-excited, permanent magnet (PM) alternator provides superior short-circuit capability.



Generator Set Rating

| Alternator | Voltage | Ph | Hz | Lean-Burn Natural Gas | | | |
|------------|-----------|----|----|-----------------------|------|--------------|------|
| | | | | 130°C Rise | | 105°C Rise | |
| | | | | Standby Rating | | Prime Rating | |
| | | | | kW/kVA | Amps | kW/kVA | Amps |
| 5M4044 | 240/416 | 3 | 60 | 955/1193 | 1656 | 809/1011 | 1403 |
| | 277/480 | 3 | 60 | 1000/1250 | 1503 | 880/1100 | 1322 |
| 7M4284 | 347/600 | 3 | 60 | 1000/1250 | 1202 | 880/1100 | 1058 |
| 7M4364 | 2400/4160 | 3 | 60 | 1000/1250 | 173 | 880/1100 | 153 |

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 Pilot Exciter |
| Voltage regulator | Solid State, Volts/Hz |
| Insulation: | NEMA MG1 |
| Material | Class H, Synthetic, Nonhygroscopic |
| Temperature rise | 130°C Standby 105°C Prime |
| Bearing: quantity, type | 1, Sealed |
| Coupling | Flexible Disc |
| Amortisseur windings | Full |
| Voltage regulation, no-load to full-load | DVR2000EC+ |
| Rotor balancing | 125% |
| Unbalanced load capability | 100% of Rated Standby Current |
| Peak motor starting kVA: | (35% dip for voltages below) |
| 480 V 5M4044 (4 bus bar) | 3900 (60Hz) |
| 600 V 7M4284 (4 bus bar) | 3200 (60Hz) |
| 4160 V 7M4364 (6 lead) | 3300 (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 | |
|--|--|
| Manufacturer | Dresser Rand |
| Engine model | SFGLD480 |
| Engine type | 48 L, 4-Cycle, Turbocharged, Charge Air-Cooled |
| Cylinder arrangement | V-16 |
| Displacement, L (cu. in.) | 47.9 (2921) |
| Bore and stroke, mm (in.) | 152 x 165 (5.98 x 6.50) |
| Compression ratio | |
| Standby and Prime: | 9.2:1 |
| Piston speed, m/min. (ft./min.) | 594 (1949) |
| Rated rpm | 1800 |
| Max. power at rated rpm, kWm (BHP) | |
| Standby: | 1060 (1421) |
| Prime: | 922 (1236) |
| Cylinder head material | Cast Iron |
| Crankshaft material | Press-forged hardened and tempered alloy steel |
| Governor: type | Electronic |
| Frequency regulation, no-load to full-load | Isochronous |
| Frequency regulation, steady state | $\pm 0.5\%$ |
| Frequency | Fixed |
| Air cleaner type, all models | Dry |

Exhaust

| Exhaust System | |
|---|-----------------|
| Exhaust manifold type | Wet |
| Exhaust flow at rated kW, kg/hr. (cfm) | |
| Standby | 5820 (6601) |
| Prime | 5300 (6010) |
| Exhaust temperature at rated kW, dry exhaust, °C (°F) | |
| Standby | 449 (840) |
| Prime | 453 (847) |
| Maximum allowable back pressure, kPa (in. Hg) | 4.5 (1.3) |
| Engine exhaust outlet size, mm (in.) | see ADV drawing |

Engine Electrical

| Engine Electrical System | |
|--|------------|
| Battery charger: | |
| Ground (negative/positive) | Negative |
| Volts (DC) | 24 |
| Ampere rating | 40 |
| Starter motor rated voltage (DC) | 24 |
| Battery, recommended cold cranking amps (CCA): Qty., CCA rating each | Four, 1400 |
| Battery voltage (DC) | 12 |

Application Data

Fuel

| Fuel System - Lean Burn | |
|---|------------------------|
| Fuel type | Natural Gas |
| Fuel supply line inlet | DN 80 |
| Natural gas fuel supply pressure, kPa (in. H ₂ O) | 8-15 (32-60) |
| Fuel supply pressure, measured at the generator set fuel inlet downstream of any fuel system equipment accessories. | |
| Fuel Composition Limits | Pipeline Nat. Gas |
| Methane number | >75.0 |
| C ₄ and higher, % by volume | <2.0 |
| Solid particles (dust) | |
| Size μm | <5 |
| Concentration mg/m _n ³ | <10 |
| Gas humidity | <80% |
| Lower heating value, MJ/m _n ³ (Btu/ft ³) | 37.5 - 42 (950 - 1050) |

Lubrication

| Lubricating System | |
|----------------------------|---------------|
| Type | Full Pressure |
| Oil pan capacity, L (qt.) | 233 (246) |
| Oil filter: quantity, type | 3, Cartridge |
| Oil cooler | Water-Cooled |

Cooling

| Engine Cooling System | |
|--|--------------------------------|
| Ambient temperature, °C (°F) | |
| Standard | 0 (32) to 50 (122) |
| With cold weather kit | -18 to 50 (0 to 122) |
| Engine jacket water capacity, L (gal.) | 250 (66.0) |
| Rated engine jacket water flow, Lpm (gpm) | 1667 (440) |
| Heat rejected to cooling water at rated kW, wet exhaust, kW (Btu/min.) | |
| Standby | 1090 (61990) |
| Prime | 998 (56760) |
| Water pump type | Centrifugal - Mechanical Drive |
| Engine cooling connections | |
| Water inlet: | DN 100 |
| Water outlet: | DN 80 |
| Pumping head at rated flow, kPa (psi) | 232 (33.6) |
| Engine restriction at rated flow, kPa (psi) | 38 (5.5) |
| Max. allowable restriction external to the engine, kPa (psi) | 194 (28.1) |
| Max. engine coolant pressure, kPa (psi) | 400 (58.0) |
| Max. engine outlet coolant temp., °C (°F) | 90 (194) |
| NPSH limit at 84°C, kPa (psi), absolute | 40 (5.8) |

Operation Requirements

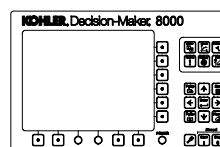
| Air Requirements | |
|-------------------------------|-------------|
| Combustion air, kg/hr. (cfm)† | |
| Standby | 5610 (2751) |
| Prime | 5100 (2501) |
| Heat rejected to ambient air: | |
| Engine, kW (Btu/min.) | |
| Standby | 48 (2730) |
| Prime | 46 (2616) |
| Alternator, kW (Btu/min.) | 49 (2810) |

† Air density = 1.20 kg/m³ (0.075 lbm/ft³)

| Fuel Consumption‡ | |
|--|----------------|
| Natural Gas, m ³ /hr. (cfh) at % load | Standby Rating |
| 100% | 287 (10135) |
| 75% | 221 (7804) |
| 50% | 156 (5509) |
| 25% | 91 (3213) |
| Natural Gas, m ³ /hr. (cfh) at % load | Prime Rating |
| 100% | 260 (9181) |
| 75% | 202 (7133) |
| 50% | 143 (5049) |
| 25% | 85 (3001) |

‡ Nominal fuel rating: Natural gas, 37 MJ/m³ (1000 Btu/ft.³)

Controller



Decision-Maker® 8000 Controller

Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities for paralleling multiple generator sets.

- Large, color display with intuitive local data access
- Measurements are selectable in metric or English units
- Communication with serial (RS485) and Ethernet (RJ45)
- Stores up to 4000 records in Event History
- Data logging and trending for easy troubleshooting
- USB flash disk for file storage of data
- Integrated PLC programmable function for advanced input and output configuration
- Supports paralleling up to 32 generators (with paralleling option)

Standard Features

- Alternator Protection
- Battery Charger, Equalize/Float Type
- Closed Crankcase Ventilation
- Local Emergency Stop Switch
- Block Heater
- EPA Certification
- Flexible Exhaust Connector, Stainless Steel
- Secondary Gas Solenoid Valve
- Dry Contact Kit (isolated alarm)
- Air Cleaner Restriction Indicator
- Engine Oil Added
- Operation and Installation Literature
- Common Fault Relay
- Run Relay

Available Options

Approvals and Listings

- CSA Approval
- UL 2200 Listing
- NFPA 110, Level 1 (Standby, Type 60)

Exhaust System

- Exhaust Silencer, Critical

Fuel System

- Gas Filter

Controller

- Remote Emergency Stop
- Paralleling
- Remote Annunciator

Cooling System

- Remote Cooling System
- Low Coolant Level Shutdown
(available with optional remote cooling system)

Electrical System

- Alternator Strip Heater (available up to 600 volt)
- Battery
- Battery Rack and Cables
- Battery Heater
- Line Circuit Breaker (NEMA1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)

Miscellaneous

- Vibration Isolation
- Certified Test Report
- Rated Power Factor Testing

Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

Warranty

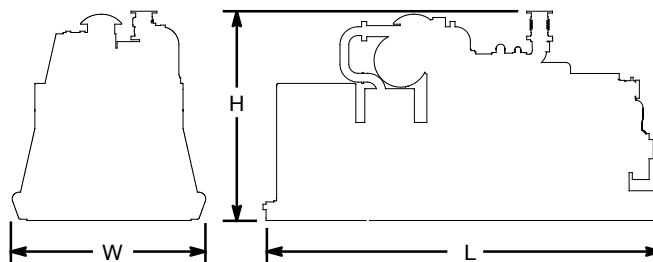
- 2-Year, Standby Extended Limited
- 2-Year, Prime Extended Limited
- 5-Year, Standby Extended Limited
- 5-Year, Prime Extended Limited

Other Options

- _____
- _____
- _____
- _____

Dimensions and Weights

Overall Size, L x W x H, max., mm (in.): 5528 x 1948 x 2465
 (217.6 x 76.7 x 97)
 Weight, wet, max., kg (lb.): 10275 (22653)



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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