



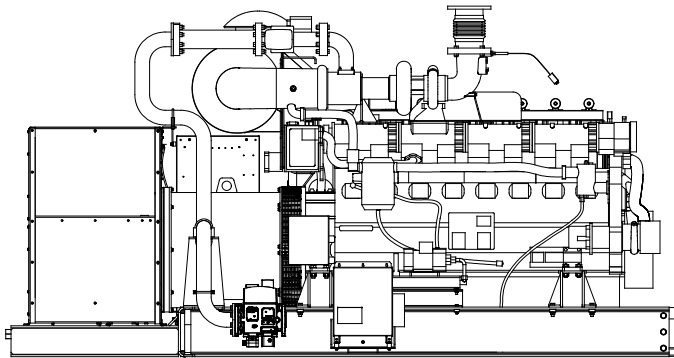
**EPA-Certified for  
Stationary Emergency and  
Non-Emergency Applications**

**Ratings Range**

		<b>60 Hz</b>
<b>Standby:</b>	<b>kW</b>	490-500
	<b>kVA</b>	612-625
<b>Prime:</b>	<b>kW</b>	430-435
	<b>kVA</b>	537-543

**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, 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.



**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
5M4028	120/208	3	60	500/625	1734	435/543	1508
	127/220	3	60	500/625	1639	435/543	1426
	139/240	3	60	500/625	1503	435/543	1307
	240/416	3	60	500/625	867	435/543	754
	277/480	3	60	500/625	751	435/543	654
5M4270	347/600	3	60	490/612	589	430/537	517

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	5M4028 (10 lead) 1800 (60Hz)
600 V	5M4270 (4 lead) 1280 (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	SFGLD240
Engine type	24 L, 4-Cycle, Turbocharged, Charge Air-Cooled
Cylinder arrangement	I-8
Displacement, L (cu. in.)	24.0 (1460)
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:	530 (711)
Prime:	461 (618)
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	2910 (3300)
Prime	2650 (3005)
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	Two, 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 <sub>2</sub> 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 <sub>4</sub> and higher, % by volume	<2.0
Solid particles (dust)	
Size            μm	<5
Concentration mg/m <sub>n</sub> <sup>3</sup>	<10
Gas humidity	<80%
Lower heating value, MJ/m <sub>n</sub> <sup>3</sup> (Btu/ft <sup>3</sup> )	37.5 - 42 (950 - 1050)

## Lubrication

Lubricating System	
Type	Full Pressure
Oil pan capacity, L (qt.)	86 (91)
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.)	75 (19.8)
Rated engine jacket water flow, Lpm (gpm)	830 (219)
Heat rejected to cooling water at rated kW, wet exhaust, kW (Btu/min.)	
Standby	541 (30770)
Prime	494 (28090)
Water pump type	Centrifugal - Mechanical Drive
Engine cooling connections	
Water inlet:	DN 80
Water outlet:	DN 65
Pumping head at rated flow, kPa (psi)	118 (17.1)
Engine restriction at rated flow, kPa (psi)	45 (6.5)
Max. allowable restriction external to the engine, kPa (psi)	73 (10.6)
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

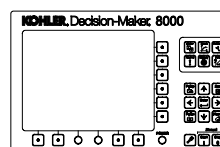
Air Requirements	
Combustion air, kg/hr. (cfm)†	
Standby	2800 (1373)
Prime	2550 (1251)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	
Standby	28 (1592)
Prime	27 (1535)
Alternator, kW (Btu/min.)	34 (1968)

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

Fuel Consumption‡	
Natural Gas, m <sup>3</sup> /hr. (cfh) at % load	Standby Rating
100%	145 (5120)
75%	112 (3955)
50%	79 (2789)
25%	46 (1624)
Natural Gas, m <sup>3</sup> /hr. (cfh) at % load	Prime Rating
100%	130 (4590)
75%	101 (3566)
50%	72 (2542)
25%	43 (1518)

‡ Nominal fuel rating: Natural gas, 37 MJ/m<sup>3</sup> (1000 Btu/ft.<sup>3</sup>)

## 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

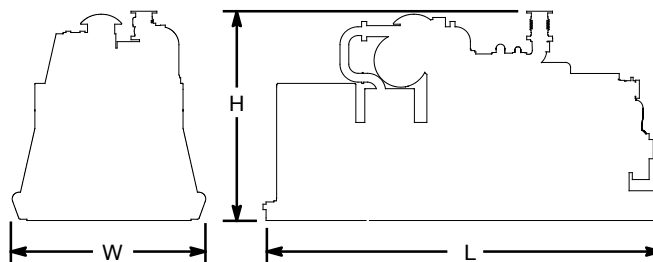
- 2-Year, Standby Extended Limited
- 2-Year, Prime Extended Limited
- 5-Year, Standby Extended Limited
- 5-Year, Prime Extended Limited

## Other Options

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

## Dimensions and Weights

Overall Size, L x W x H, max., mm (in.): 4126 x 1987 x 2152  
 (162.4 x 78.2 x 84.7)  
 Weight, wet, max., kg (lb.): 6400 (14110)



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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