

KDxxxx designates a generator set with a Tier 2 EPA-Certified engine.  
KDxxxx-F designates a 60 Hz generator set with a fuel optimized engine.

### Ratings Range

		60 Hz	
Standby:	kW	975- 1000	
	kVA	1219- 1250	
Prime:	kW	810- 900	
	kVA	1012- 1125	

### 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, when equipped with the necessary accessories and installed per NFPA standards.
- A standard three-year or 1000-hour limited warranty for standby applications. Five-year basic, five-year comprehensive, and ten-year extended limited warranties are also available.
- A standard two-year or 8700-hour limited warranty for prime power applications.
- Other features:
  - Kohler designed controllers for one-source system integration and remote communication. See Controllers on page 4.
  - The low coolant level shutdown prevents overheating (standard on radiator models only).

### General Specifications

Orderable Generator Model Number	GMKD1000
Manufacturer	Kohler
Engine: model	KD27V12
Alternator Choices	KH04070TO4D KH04830TO4D KH05520TO4D
Performance Class	Per ISO 8528-5
One Step Load Acceptance	100%
Voltage	Wye or 600 V
Controller	APM603, APM802
Fuel Tank Capacity, L (gal.)	3475- 19381 (918- 5120)
Fuel Consumption, L/hr (gal./hr) 100% at Standby	269 (70.9)
Fuel Consumption, L/hr (gal./hr) 100% at Prime Power	247 (65.3)
Emission Level Compliance (KDxxxx)	Tier 2
Open Unit Noise Level @ 7 m dB(A) at Rated Load	96
Data Center Continuous (DCC) Rating (Refer to TIB-101 for definitions)	Same as the Standby Rating below

### Generator Set 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
KH04070TO4D	120/208	3	60	1000/1250	3470	1000/1250	3470	900/1125	3123	810/1012	2810
	127/220	3	60	1000/1250	3281	1000/1250	3281	900/1125	2953	810/1012	2656
	139/240	3	60	1000/1250	3008	975/1219	2933	900/1125	2707	—	—
	220/380	3	60	1000/1250	1900	1000/1250	1899	900/1125	1710	900/1125	1710
	240/416	3	60	1000/1250	1735	1000/1250	1735	900/1125	1562	870/1088	1510
	254/440	3	60	1000/1250	1641	1000/1250	1641	900/1125	1477	900/1125	1477
	277/480	3	60	1000/1250	1504	1000/1250	1504	900/1125	1354	900/1125	1354
	347/600	3	60	1000/1250	1203	1000/1250	1203	900/1125	1083	900/1125	1083
KH04830TO4D	230/400	3	60	1000/1250	1805	1000/1250	1805	900/1125	1624	900/1125	1624
	240/416	3	60	1000/1250	1735	1000/1250	1735	900/1125	1562	900/1125	1562
	254/440	3	60	1000/1250	1641	1000/1250	1641	900/1125	1477	900/1125	1477
	277/480	3	60	1000/1250	1504	1000/1250	1504	900/1125	1354	900/1125	1354

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.



# Industrial Diesel Generator Set - KD1000

## Tier 2 EPA-Certified for Stationary Emergency Applications

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
KH05520TO4D	220/380	3	60	1000/1250	1900	1000/1250	1900	900/1125	1710	900/1125	1710
	230/400	3	60	1000/1250	1805	1000/1250	1805	900/1125	1624	900/1125	1624
	240/416	3	60	1000/1250	1735	1000/1250	1735	900/1125	1562	900/1125	1562
	254/440	3	60	1000/1250	1641	1000/1250	1641	900/1125	1477	900/1125	1477
	277/480	3	60	1000/1250	1504	1000/1250	1504	900/1125	1354	900/1125	1354
	347/600	3	60	1000/1250	1203	1000/1250	1203	900/1125	1083	900/1125	1083

Engine Specifications	60 Hz
Manufacturer	Kohler
Engine: model	KD27V12
Engine: type	4-Cycle, Turbocharged, Charge Air Cooled
Cylinder arrangement	12-V
Displacement, L (cu. in.)	27 (1648)
Bore and stroke, mm (in.)	135 x 157 (5.31 x 6.18)
Compression ratio	15.0:1
Piston speed, m/min. (ft./min.)	565 (1854)
Main bearings: quantity, type	7, Precision Half Shells
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	1114 (1494)
Cylinder head material	Cast Iron
Crankshaft material	Steel
Valve (exhaust) material	Steel
Governor: type, make/model	KODEC Electronic Control
Frequency regulation, no-load to-full load	Isochronous
Frequency regulation, steady state	±0.25%
Frequency	Fixed
Air cleaner type, all models	Dry

Lubricating System	60 Hz
Type	Full Pressure
Oil pan capacity dipstick mark max., L (qt.) §	79 (83.5)
Oil pan capacity, initial filling, L (qt.) §	101 (106.7)
Oil filter: quantity, type §	2, Cartridge
Oil cooler	Water-Cooled
§ Kohler recommends the use of Kohler Genuine oil and filters.	

Fuel System	60 Hz
Fuel supply line, min. ID, mm (in.)	14 (0.55)
Fuel return line, min. ID, mm (in.)	14 (0.55)
Max. fuel flow, Lph (gph)	380 (100)
Min./max. fuel pressure at engine supply connection, kPa (in. Hg)	-30/30 (-8.8/8.8)
Max. return line restriction, kPa (in. Hg)	20 (5.9)
Fuel filter: quantity, type	1, Primary Engine Filter 1, Fuel/Water Separator
Recommended fuel	#2 Diesel ULSD

Fuel Consumption	60 Hz	
Diesel, Lph (gph) at % load	Standby Rating	
	100%	269 (70.9)
	75%	209 (55.3)
	50%	146 (38.6)
Diesel, Lph (gph) at % load	Prime Rating	
	100%	247 (65.3)
	75%	191 (50.4)
	50%	135 (35.6)
Diesel, Lph (gph) at % load	25%	79 (20.8)

Radiator System	60 Hz
Ambient temperature, °C (°F)*	40 (104) 50 (122)
Radiator system capacity, including engine, L (gal.)	113 (29.5) 123 (32.4)
Engine jacket water capacity, L (gal.)	55 (14.4)
Engine jacket water flow, Lpm (gpm)	1015 (268)
Charge cooler air inlet temperature at 25°C (77°F) ambient, °C (°F)	219 (426)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	404 (22996)
Heat rejected to charge air cooler at rated kW, dry exhaust, kW (Btu/min.)	260 (14799)
Turbocharger boost (abs) bar (psi)	3.4 (49)
Water pump type	Vane Wheel
Fan diameter, including blades, mm (in.)	1350 (53.1)
Fan, kWm (HP)	48 (64.3)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O)	0.125 (0.5)

\* Enclosure with enclosed silencer reduces ambient temperature capability by 5°C (9°F).

Remote Radiator System†	60 Hz
Exhaust manifold type	Dry
Connection sizes:	
Water inlet/outlet, mm (in.)	85 (3.35)
Charge air cooler inlet/outlet (pipe dia. of flange), mm (in.)	127 (5)
Static head allowable above engine, kPa (ft. H <sub>2</sub> O)	70 (23.5)

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

Exhaust System	60 Hz
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)	201.6 (7119)
Exhaust temperature at rated kW at 25°C (77°F) ambient, dry exhaust, °C (°F)	530 (986)
Maximum allowable back pressure, kPa (in. Hg)	8.5 (2.5)
Exh. outlet size at eng. hookup, mm (in.)	See ADV drawing

Electrical System	60 Hz
Battery charging alternator:	
Ground (negative/positive)	Negative
Volts (DC)	24
Ampere rating	140
Starter motor qty. at starter motor power rating, rated voltage (DC)	Standard: 1 @ 7.8 kW, 24; Redundant (optional): 2 @ 7.8 kW, 24
Battery, recommended cold cranking amps (CCA):	
Quantity, CCA rating each, type (with standard starter)	2, 1110, AGM
Quantity, CCA rating each, type (with optional redundant starters)	4, 1110, AGM
Battery voltage (DC)	12

Air Requirements	60 Hz
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm)‡	1212 (42801)
High ambient radiator-cooled cooling air, m <sup>3</sup> /min (scfm)‡	1350 (47700)
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)‡	653.9 (23092)
Combustion air, m <sup>3</sup> /min. (cfm)	72.7 (2566)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	136 (7741)
Alternator, kW (Btu/min.)	48 (2732)
‡ Air density = 1.20 kg/m <sup>3</sup> (0.075 lbm/ft <sup>3</sup> )	

Alternator Specifications	60 Hz
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Permanent-Magnet Pilot Exciter
Voltage regulator	Solid-State, Volts/Hz
Insulation:	NEMA MG1, UL 1446, Vacuum Pressure Impregnated (VPI)
Material	Class H, Synthetic, Nonhygroscopic
Temperature rise	130°C, 150°C Standby
Bearing: quantity, type	1, Sealed
Coupling type	Flexible Disc
Amortisseur windings	Full
Alternator winding type	Random Wound
Rotor balancing	125%
Voltage regulation, no-load to full-load	±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	KH04070TO4D 3774
480 V	KH04830TO4D 4193
480 V	KH05520TO4D 4612

### Alternator Standard Features

- The pilot-excited, permanent magnet (PM) alternator provides superior short-circuit capability.
- All models are brushless, rotating-field alternators.
- 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 two-thirds pitch windings and skewed stator.
- Brushless alternator with brushless pilot exciter for excellent load response.

**NOTE:** See TIB- 102 Alternator Data Sheets for alternator application data and ratings, efficiency curves, voltage dip with motor starting curves, and short circuit decrement curves.

### Controllers



#### APM802 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- 12-inch graphic display with touch screen and menu control provide easy local data access
- Measurements are selectable in metric or English units
- User language is selectable
- Two USB ports allow connection of a flash drive, mouse, or keypad
- Electrical data, mechanical data, and system settings can be saved to a flash drive
- Ethernet port allows connection to a PC type computer or Ethernet switch
- The controller supports Modbus® RTU and TCP protocols
- NFPA 110 Level 1 capability

Refer to G6-152 for additional controller features and accessories.

Modbus® is a registered trademark of Schneider Electric.



#### APM603 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- 7-inch graphic display with touch screen and menu control provides easy local data access
- Measurements are selectable in metric or English units
- Paralleling capability to control up to 8 generators on an isolated bus with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays  
Note: Parallel with other APM603 controllers only
- Generator management to turn paralleled generators off and on as required by load demand
- Load management to connect and disconnect loads as required
- Controller supports Modbus® RTU, Modbus® TCP, SNMP and BACnet®
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- UL-listed overcurrent protective device
- NFPA 110 Level 1 capability

Refer to G6-162 for additional controller features and accessories.

BACnet® is a registered trademark of ASHRAE.

### Codes and Standards

- Engine-generator set is designed and manufactured in facilities certified to ISO 9001.
- Generator set meets NEMA MG1, BS5000, ISO, DIN EN, and IEC standards, NFPA 110.
- Engine generator set is tested to ISO 8528-5 for transient response.
- The generator set and its components are prototype-tested, factory-built, and production-tested.

### Third-Party Compliance

- Tier 2 EPA-Certified for Stationary Emergency Applications

#### Available Approvals and Listings

- California OSHPD Approval
- CSA Certified
- IBC Seismic Certification
- UL 2200 Listing
- cULus Listing (fuel tanks only)
- Florida Dept. of Environmental Protection (FDEP) Compliance (fuel tanks only)

### Warranty Information

- A standard three-year or 1000-hour limited warranty for standby applications. Five-year basic, five-year comprehensive, and ten-year extended limited warranties are also available.
- A standard two-year or 8700-hour limited warranty for prime power applications.

#### Available Warranties for Standby Applications

- 5-Year Basic Limited Warranty
- 5-Year Comprehensive Limited Warranty
- 10-Year Major Components Limited Warranty

### Standard Features

- Closed Crankcase Ventilation (CCV) Filters
- Customer Connection
- Integral Vibration Isolation
- Local Emergency Stop Switch
- Oil Drain and Coolant Drain Extension
- Operation and Installation Literature
- Battery Rack and Cables

### Available Options

#### Circuit Breakers

- | Type   | Rating   |
|--|--|
| <input type="checkbox"/> Magnetic Trip                         | <input type="checkbox"/> 80%                                     |
| <input type="checkbox"/> Thermal Magnetic Trip                 | <input type="checkbox"/> 100%                                    |
| <input type="checkbox"/> Electronic Trip (LI)                  | <b>Operation</b>   |
| <input type="checkbox"/> Electronic Trip with Short Time (LSI) | <input type="checkbox"/> Manual                                  |
|  | <input type="checkbox"/> Electrically Operated (for paralleling) |

#### Circuit Breaker Mounting

- Generator Mounted
- Remote Mounted
- Bus Bar (for remote mounted breakers)

#### Enclosed Remote Mounted Circuit Breakers

- NEMA 1 (15- 5000 A)
- NEMA 3R (15- 1200 A)

#### Engine Type

- KDxxxx Tier 2 EPA-Certified Engine
- KDxxxx-F Fuel Optimized Engine

#### Approvals and Listings

- California OSHPD Approval
- CSA Certified
- IBC Seismic Certification
- UL 2200 Listing
- cULus Listing (fuel tanks only)
- Florida Dept. of Environmental Protection (FDEP) Compliance (fuel tanks only)
- Hurricane Rated Enclosure

#### Enclosed Unit

- Sound Level 1 Enclosure/Fuel Tank Package
- Sound Level 2 Enclosure/Fuel Tank Package

#### Open Unit

- Exhaust Silencer, Critical (kits: PA-354880 qty. 2 or PA-354898 qty. 1)
- Exhaust Silencer, Hospital (kits: PA-354905 qty. 2 or PA-354912 qty. 1)
- Flexible Exhaust Connector, Stainless Steel

#### Controller

- Input/Output, Digital
- Load Shed (APM802 only)
- Manual Key Switch
- Remote Emergency Stop Switch
- Lockable Emergency Stop Switch
- Remote Serial Annunciator Panel

#### Cooling System

- Block Heater; 6000 W, 208 V, (select 1 Ph or 3 Ph) \*
  - Block Heater; 6000 W, 240 V, (select 1 Ph or 3 Ph) \*
  - Block Heater; 6000 W, 480 V, (select 1 Ph or 3 Ph) \*
- \* Required for ambient temperatures below 10°C (50°F). Block heater kit includes air intake manifold grid heater.
- Radiator Guard and Duct Flange

#### Electrical System

- Battery, AGM (kit with qty. 2)
- Battery Charger
- Battery Heater; 80 W, 120 V, 1Ph
- Generator Heater
- Redundant Starters

#### Fuel System

- Flexible Fuel Lines
- Restriction Gauge (for fuel/water separator)

#### Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

#### Miscellaneous

- Air Cleaner, Heavy Duty (loose)
- Air Cleaner Restriction Indicator
- Alternator Air Filter (will reduce generator set rating by 7%)
- Automatic Oil Replenishment System
- Engine Fluids (oil and coolant) Added
- Rated Power Factor Testing

#### Electrical Package (Requires Enclosure selection)

- Basic Electrical Package (select 1 Ph or 3 Ph)
- Wire Battery Charger (1 Ph)
- Wire Block Heater (select 1 Ph or 3 Ph)
- Wire Controller Heater (1 Ph)
- Wire Generator Heater (1 Ph)

#### Warranty (Standby Applications only)

- 5-Year Basic Limited Warranty
- 5-Year Comprehensive Limited Warranty
- 10-Year Major Components Limited Warranty

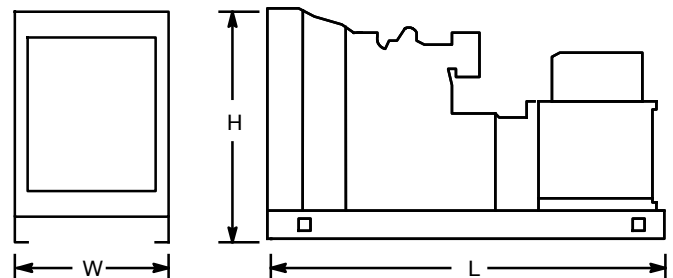
#### Other

- 
- 

#### Dimensions and Weights

Overall Size, max., L x W x H, mm (in.): 4181 x 1986 x 2100  
(165.0 x 78.2 x 82.7)

Weight, radiator model, max. wet, kg (lb.): 8083 (17821)



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

KOHLER CO., Kohler, Wisconsin 53044 USA  
Phone 920-457-4441, Fax 920-459-1646  
For the nearest sales and service outlet in the  
US and Canada, phone 1-800-544-2444  
KOHLERPower.com

### Sound Enclosures and Subbase Fuel Tank

#### Sound Level 1 Enclosure Standard Features

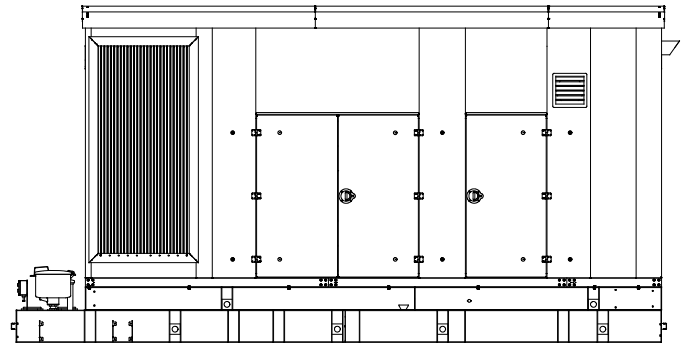
- Lift base or tank-mounted, aluminum construction enclosure with internal-mounted, exhaust silencers.
- Every enclosure has a sloped roof to reduce the buildup of moisture and debris.
- Sound attenuated enclosure that offers noise reduction using acoustic insulation, acoustic-lined air inlets and an acoustic-lined air discharge.
- Fade-, scratch-, and corrosion-resistant Kohler® Power Armor™ automotive-grade textured finish.
- Acoustic insulation that meets UL 94 HF1 flammability classification.
- Enclosure has large access doors that are hinged and removable which allow for easy maintenance.
- Lockable, flush-mounted door latches.
- Air inlet louvers reduce rain and snow entry.
- High wind bracing, 241 kph (150 mph).

#### Sound Level 2 Enclosure Standard Features

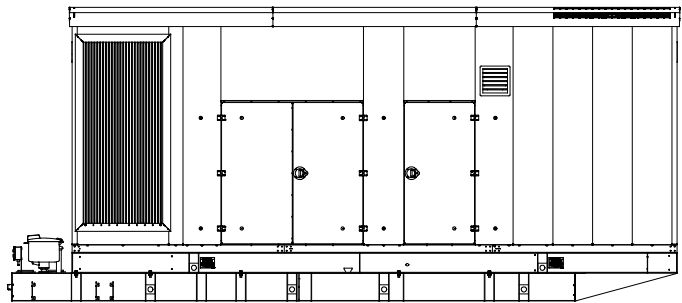
- Includes all of the sound level 1 enclosure features with the addition of up to 51 mm (2 in.) acoustic insulation material, intake sound baffles, vertical air discharge, and secondary silencers.
- Louvered air inlet and vertical outlet hood with 90 degree angles to redirect air and reduce noise.

#### Subbase Fuel Tank Features

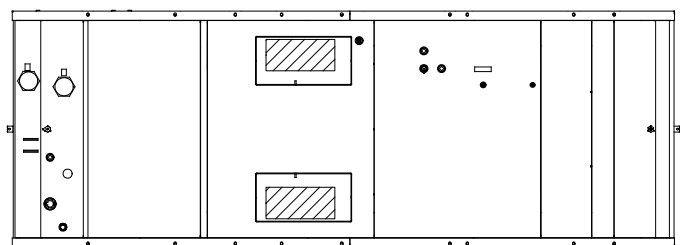
- The fuel tank has a Power Armor Plus™ textured epoxy-based rubberized coating.
- The above-ground rectangular secondary containment tank mounts directly to the generator set, below the generator set skid (subbase).
- Both the inner and outer tanks have UL-listed emergency relief vents.
- Flexible fuel lines are provided with subbase fuel tank selection.
- The containment tank's construction protects against fuel leaks or ruptures. The inner (primary) tank is sealed inside the outer (secondary) tank. The outer tank contains the fuel if the inner tank leaks or ruptures.
- The above ground secondary containment subbase fuel tank meets UL 142 requirements.
- Features include:
  - Additional fittings for optional accessories (qty. 3)
  - Electrical stub-up area open to bottom
  - Emergency inner and outer tank relief vents
  - Fuel fill with lockable cap and 51 mm (2 in.) riser
  - Fuel leak detection switch
  - Fuel level mechanical gauge
  - Fuel level sender
  - Normal vent
  - Removable engine supply and return diptubes



**Sound Level 1 Enclosure**  
(Shown with available spill containment)



**Sound Level 2 Enclosure**  
(Shown with available spill containment)



**Subbase Fuel Tank (Top View)**

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