

KDxxxx-YF designates a 50 Hz generator set with a fuel optimized engine.

### Ratings Range

		50 Hz
Standby:	kW	856- 880
	kVA	1070- 1100
Prime:	kW	768- 792
	kVA	960- 990



### Standard Features

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- Approved for use with certified renewable Hydrotreated Vegetable Oil (HVO) / Renewable Diesel (RD) fuels compliant with EN15940 / ASTM D975.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The generator set accepts rated load in one step.
- 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
Controller	APM603, APM802
Fuel Tank Capacity, L (gal.)	3475- 19381 (918- 5120)
Fuel Consumption, L/hr (gal./hr) 100% at Standby	221 (58.5)
Fuel Consumption, L/hr (gal./hr) 100% at Prime Power	202 (53.5)
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	220/380	3	50	880/1100	1672	880/1100	1672	792/990	1505	792/990	1505
	230/400	3	50	880/1100	1588	880/1100	1588	792/990	1429	792/990	1429
	240/415	3	50	880/1100	1527	856/1070	1489	792/990	1374	768/960	1333
KH04830TO4D	220/380	3	50	880/1100	1672	880/1100	1672	792/990	1505	792/990	1505
	230/400	3	50	880/1100	1588	880/1100	1588	792/990	1429	792/990	1429
	240/415	3	50	880/1100	1527	880/1100	1527	792/990	1374	792/990	1374
KH05520TO4D	220/380	3	50	880/1100	1672	880/1100	1672	792/990	1505	792/990	1505
	230/400	3	50	880/1100	1588	880/1100	1588	792/990	1429	792/990	1429
	240/415	3	50	880/1100	1527	880/1100	1527	792/990	1374	792/990	1374

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.

Engine Specifications	50 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.)	471 (1545)
Main bearings: quantity, type	7, Precision Half Shells
Rated rpm	1500
Max. power at rated rpm, kWm (BHP)	979 (1313)
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	50 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	50 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)	320 (84.5)
Min./max. fuel pressure at engine supply connection, kPa (in. Hg)	-30/30 (-8.8/8.8)
Max. return line restriction, kPa (in. Hg)	30 (8.8)
Fuel filter: quantity, type	1, Primary Engine Filter 1, Fuel/Water Separator
Recommended fuel	#2 Diesel ULSD / HVO / RD

Fuel Consumption**	50 Hz
Diesel, Lph (gph) at % load	Standby Rating
100%	221 (58.5)
75%	163 (43.1)
50%	111 (29.3)
25%	60 (15.8)

Diesel, Lph (gph) at % load	Prime Rating
100%	202 (53.5)
75%	148 (39.1)
50%	101 (26.7)
25%	55 (14.5)

\*\* Volumetric Fuel consumption is up to 4% higher when using HVO/RD than #2 ULSD.

Radiator System	50 Hz
Ambient temperature, °C (°F)*	40 (104)
Engine jacket water capacity, L (gal.)	117 (30.9)
Radiator system capacity, including engine, L (gal.)	170 (44.9)
Engine jacket water flow, Lpm (gpm)	863 (228)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	338 (19239)
Heat rejected to charge air cooler at rated kW, dry exhaust, kW (Btu/min.)	210 (11953)
Charge cooler air inlet temperature at 25°C (77°F) ambient, °C (°F)	224 (435)
Turbocharger boost (abs) bar (psi)	3.6 (53)
Water pump type	Vane Wheel
Fan diameter, including blades, mm (in.)	1350 (53.1)
Fan, kWm (HP)	21 (28)
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†	50 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	50 Hz
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)	158.6 (5601)
Exhaust temperature at rated kW at 25°C (77°F) ambient, dry exhaust, °C (°F)	485 (905)
Maximum allowable back pressure, kPa (in. Hg)	8.5 (2.5)
Exh. outlet size at eng. hookup, mm (in.)	See ADV drawing

Electrical System	50 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	50 Hz
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm)‡	875 (30900)
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)‡	572.1 (20204)
Combustion air, m <sup>3</sup> /min. (cfm)	59.8 (2113)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	113 (6432)
Alternator, kW (Btu/min.)	45 (2561)

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

Alternator Specifications	50 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	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)
400 V	KH04070TO4D
400 V	KH04830TO4D
400 V	KH05520TO4D
	3145
	3494
	3844

### 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  $\pm 0.25\%$  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 standards ISO2008:9001 and ISO2004:14001.
- 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

#### Available Approvals and Listings

- ☐ cULus

### 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

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

### 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"/> Electronic Trip with Ground Fault (LSIG)	<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)

#### Approvals and Listings

- ☐ cULus

#### 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, 380 V, 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, AGM (kit with qty. 4)
- ☐ Battery Charger
- ☐ 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
- ☐ Air Cleaner Restriction Indicator
- ☐ Alternator Air Filter (will reduce generator set output by 7%)
- ☐ Automatic Oil Replenishment System
- ☐ Engine Fluids (oil and coolant) Added
- ☐ Rated Power Factor Testing

#### Electrical Package

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

#### Warranty (Standby Applications only)

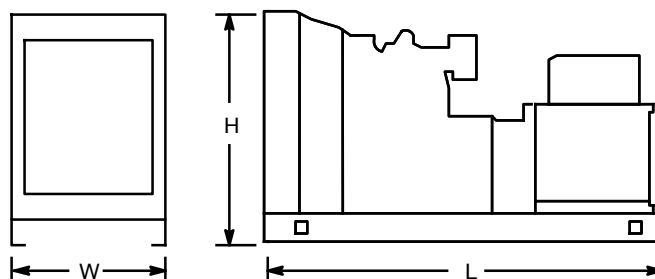
- ☐ 5-Year Basic Limited Warranty
- ☐ 5-Year Comprehensive Limited Warranty
- ☐ 10-Year Major Components Limited Warranty

#### Other

- ☐
- ☐

#### Dimensions and Weights

Overall Size, max., L x W x H, mm (in.):	4224 x 1941 x 2200 (166.3 x 76.4 x 86.6)
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

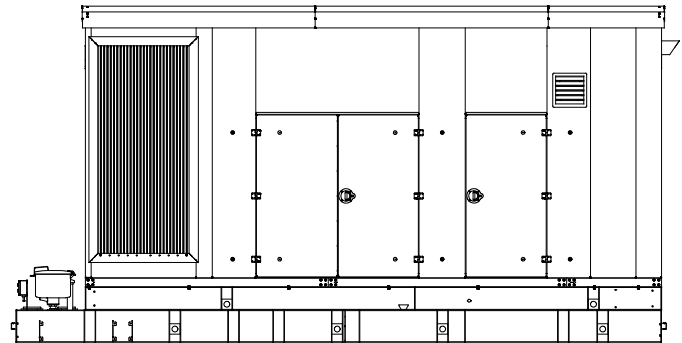
- Lift base or tank-mounted, aluminum construction enclosure with internal-mounted, exhaust silencers.
- Every enclosure has a sloped roof to reduce the buildup of moisture and debris.
- Sound attenuated enclosure that offers noise reduction using acoustic insulation, acoustic-lined air inlets and an 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

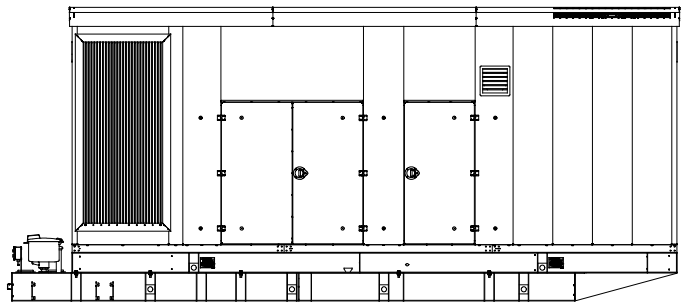
- Includes all of the sound level 1 enclosure features with the addition of up to 51 mm (2 in.) acoustic insulation material, intake sound baffles, vertical air discharge, and secondary silencers.
- Louvered air inlet and vertical outlet hood with 90 degree angles to redirect air and reduce noise.

### Subbase Fuel Tank Features

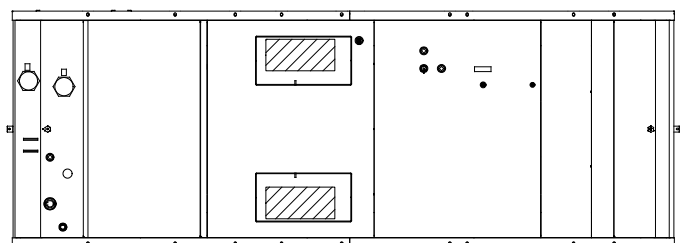
- The fuel tank has a Power Armor Plus™ textured epoxy-based rubberized coating.
- The above-ground rectangular secondary containment tank mounts directly to the generator set, below the generator set skid (subbase).
- Both the inner and outer tanks have UL-listed emergency relief vents.
- Flexible fuel 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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