

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	720-800
	kVA	900-1000
Prime:	kW	640-720
	kVA	800-900



## Standard Features

- Rehlko 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.
- cULus listing (UL 2200 and CSA C22.2 No. 100).
- 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 unlimited-hour limited warranty for standby applications in the U.S. And Canada. 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:
  - Rehlko 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).

## Conscious Care™ Qualified

- Reduce operating costs, fuel consumption, and greenhouse gas emissions with Conscious Care™ maintenance program.

## Generator Set Ratings

Alternator	Voltage	150°C Rise Standby Rating				130°C Rise Standby Rating		125°C Rise Prime Rating		105°C Rise Prime Rating	
		Ph	Hz	kW/kVA	Amps	kW/kVA	Amps	kW/kVA	Amps	kW/kVA	Amps
KH02970TO4D	240/416	3	60	740/925	1284	720/900	1250	705/881	1223	640/800	1111
	254/440	3	60	800/1000	1313	790/988	1297	720/900	1181	695/869	1141
	277/480	3	60	800/1000	1203	800/1000	1203	720/900	1083	695/869	1046
	120/208	3	60	800/1000	2776	800/1000	2776	720/900	2499	—	—
	127/220	3	60	800/1000	2625	800/1000	2625	720/900	2362	—	—
	139/240	3	60	800/1000	2406	800/1000	2406	720/900	2166	720/900	2166
	230/400	3	60	800/1000	1444	800/1000	1444	720/900	1300	720/900	1300
KH03450TO4D	240/416	3	60	800/1000	1388	800/1000	1388	720/900	1250	720/900	1250
	254/440	3	60	800/1000	1313	800/1000	1313	720/900	1181	720/900	1181
	277/480	3	60	800/1000	1203	800/1000	1203	720/900	1083	720/900	1083

**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.

Discovery Energy, LLC

200 Twin Oaks Road, Kohler, WI 53044 USA

For the nearest sales and service outlet in the US and Canada, phone 1-800-544-2444 - powersystems.rehlko.com

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	800/1000	2776	800/1000	2776	720/900	2499	720/900	2499
	127/220	3	60	800/1000	2625	800/1000	2625	720/900	2362	720/900	2362
	139/240	3	60	795/994	2392	795/994	2392	720/900	2166	—	—
	220/380	3	60	800/1000	1520	800/1000	1520	720/900	1368	720/900	1368
	230/400	3	60	800/1000	1444	800/1000	1444	720/900	1300	720/900	1300
	240/416	3	60	800/1000	1388	800/1000	1388	720/900	1250	720/900	1250
	254/440	3	60	800/1000	1313	800/1000	1313	720/900	1181	720/900	1181
	277/480	3	60	800/1000	1203	800/1000	1203	720/900	1083	720/900	1083
	347/600	3	60	800/1000	963	800/1000	963	720/900	867	720/900	867
<b>Engine Specifications</b>				<b>60 Hz</b>							
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, kW/m (BHP)				891 (1195)							
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							
<b>Lubricating System</b>				<b>60 Hz</b>							
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							
§ Rehlko recommends the use of Rehlko Genuine oil and filters.											
<b>Fuel System</b>				<b>60 Hz</b>							
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)				315 (83)							
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							
<b>Fuel Consumption**</b>				<b>60 Hz</b>							
<b>Diesel, Lph (gph) at % load</b>				<b>Standby Rating</b>							
100%				218 (57.5)							
75%				169 (44.6)							
50%				118 (31.2)							
25%				66 (17.3)							
<b>Diesel, Lph (gph) at % load</b>				<b>Prime Rating</b>							
100%				200 (52.8)							
75%				154 (40.7)							
50%				108 (28.5)							
25%				62 (16.3)							
* Volumetric Fuel consumption is up to 4% higher when using HVO/RD than #2 ULSD.											
<b>Radiator System</b>				<b>60 Hz</b>							
Ambient temperature, °C (°F)*				50 (122)							
Radiator system capacity, including engine, L (gal.)				113 (29.5)							
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)				207 (405)							
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)				325 (18499)							
Heat rejected to charge air cooler at rated kW, dry exhaust, kW (Btu/min.)				232 (13205)							
Turbocharger boost (abs) bar (psi)				3.2 (46)							
Water pump type				Vane Wheel							
Fan diameter, including blades, mm (in.)				1350 (53.1)							
Fan, kW/m (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).											
<b>Remote Radiator System†</b>				<b>60 Hz</b>							
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.											

<b>Exhaust System</b>		<b>60 Hz</b>	<b>Alternator Specifications</b>		<b>60 Hz</b>
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)		174.3 (6155)	Type	4-Pole, Rotating-Field	
Exhaust temperature at rated kW at 25°C (77°F) ambient, dry exhaust, °C (°F)		470 (878)	Exciter type	Brushless, Permanent-Magnet Pilot Exciter	
Maximum allowable back pressure, kPa (in. Hg)		8.5 (2.5)	Voltage regulator	Solid-State, Volts/Hz	
Exh. outlet size at eng. hookup, mm (in.)		See ADV drawing	Insulation:	NEMA MG1, UL 1446, Vacuum Pressure Impregnated (VPI)	
<b>Electrical System</b>		<b>60 Hz</b>	Material		
Battery charging alternator:			Temperature rise	Class H, Synthetic, Nonhygroscopic	
Ground (negative/positive)		Negative	Bearing: quantity, type	130°C, 150°C Standby	
Volts (DC)		24	Coupling type	1, Sealed	
Ampere rating		140	Amortisseur windings	Flexible Disc	
Starter motor qty. at starter motor power rating, rated voltage (DC)		Standard: 1 @ 7.8 kW, 24; Redundant (optional): 2 @ 7.8 kW, 24	Alternator winding type	Full	
Battery, recommended cold cranking amps (CCA):			Rotor balancing	Random Wound	
Quantity, CCA rating each, type (with standard starter)		2, 1110, AGM	Voltage regulation, no-load to full-load	125%	
Quantity, CCA rating each, type (with optional redundant starters)		4, 1110, AGM	One-step load acceptance	±0.25%	
Battery voltage (DC)		12	Unbalanced load capability	100% of Rating	
<b>Air Requirements</b>		<b>60 Hz</b>	100% of Rated Standby Current		
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm)‡		1212 (42801)	Peak motor starting kVA:	(35% dip for voltages below)	
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)‡		565 (19953)	480 V	KH02970TO4D	2717
Combustion air, m <sup>3</sup> /min. (cfm)		63.5 (2241)	480 V	KH03450TO4D	3136
Heat rejected to ambient air:			480 V	KH04070TO4D	3774
Engine, kW (Btu/min.)		111 (6318)			
Alternator, kW (Btu/min.)		47 (2675)			
‡ Air density = 1.20 kg/m <sup>3</sup> (0.075 lbm/ft <sup>3</sup> )					

## 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 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 Pre-Approval
- cULus (UL 2200 and CSA C22.2 No. 100)
- IBC Seismic Certification
- Florida Dept. of Environmental Protection (FDEP) Compliance (fuel tanks only)

## Warranty Information

- A standard three-year unlimited-hour limited warranty for standby applications in the U.S. And Canada. 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

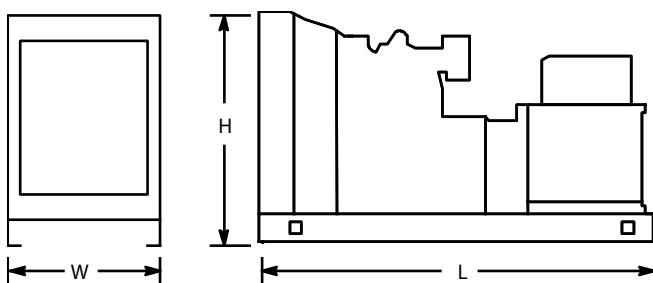
- Closed Crankcase Ventilation (CCV) Filters
- Customer Connection
- Integral Vibration Isolation
- Local Emergency Stop Switch
- Oil Drain and Coolant Drain Extension
- Operation and Installation Literature
- Battery Rack and Cables

## Available Options

Circuit Breakers		Electrical System	
<b>Type</b>	<b>Rating</b>	<input type="checkbox"/> Battery, AGM (kit with qty. 2)	<input type="checkbox"/> Battery Charger
<input type="checkbox"/> Magnetic Trip	<input type="checkbox"/> 80%	<input type="checkbox"/> Battery Heater; 80 W, 120 V, 1Ph	<input type="checkbox"/> Generator Heater
<input type="checkbox"/> Thermal Magnetic Trip	<input type="checkbox"/> 100%	<input type="checkbox"/> Redundant Starters	
<input type="checkbox"/> Electronic Trip (LI)	<input type="checkbox"/> Manual		
<input type="checkbox"/> Electronic Trip with Short Time (LSI)	<input type="checkbox"/> Electrically Operated (for paralleling)		
Circuit Breaker Mounting		Fuel System	
<input type="checkbox"/> Generator Mounted		<input type="checkbox"/> Flexible Fuel Lines	
<input type="checkbox"/> Remote Mounted		<input type="checkbox"/> Restriction Gauge (for fuel/water separator)	
<input type="checkbox"/> Bus Bar (for remote mounted breakers)			
Enclosed Remote Mounted Circuit Breakers		Literature	
<input type="checkbox"/> NEMA 1 (15-5000 A)		<input type="checkbox"/> General Maintenance	
<input type="checkbox"/> NEMA 3R (15-1200 A)		<input type="checkbox"/> NFPA 110	
		<input type="checkbox"/> Overhaul	
		<input type="checkbox"/> Production	
Engine Type		Miscellaneous	
<input type="checkbox"/> KDxxxx Tier 2 EPA-Certified Engine		<input type="checkbox"/> Air Cleaner, Heavy Duty (loose)	
<input type="checkbox"/> KDxxxx-F Fuel Optimized Engine		<input type="checkbox"/> Air Cleaner Restriction Indicator	
Approvals and Listings		<input type="checkbox"/> Alternator Air Filter (will reduce generator set rating by 7%)	
<input type="checkbox"/> California OSHPD Pre-Approval		<input type="checkbox"/> Automatic Oil Replenishment System	
<input type="checkbox"/> cULus (UL 2200 and CSA)		<input type="checkbox"/> Engine Fluids (oil and coolant) Added	
<input type="checkbox"/> IBC Seismic Certification		<input type="checkbox"/> Rated Power Factor Testing	
<input type="checkbox"/> Florida Dept. of Environmental Protection (FDEP) Compliance (fuel tanks only)			
<input type="checkbox"/> Hurricane Rated Enclosure			
Enclosed Unit		Electrical Package (Requires Enclosure selection)	
<input type="checkbox"/> Sound Level 1 Enclosure/Fuel Tank Package		<input type="checkbox"/> Basic Electrical Package (select 1 Ph or 3 Ph)	
<input type="checkbox"/> Sound Level 2 Enclosure/Fuel Tank Package		<input type="checkbox"/> Wire Battery Charger (1 Ph)	
Open Unit		<input type="checkbox"/> Wire Block Heater (select 1 Ph or 3 Ph)	
<input type="checkbox"/> Exhaust Silencer, Critical (kits: PA-354880 qty. 2 or PA-354898 qty. 1)		<input type="checkbox"/> Wire Controller Heater (1 Ph)	
<input type="checkbox"/> Exhaust Silencer, Hospital (kits: PA-354905 qty. 2 or PA-354912 qty. 1)		<input type="checkbox"/> Wire Generator Heater (1 Ph)	
<input type="checkbox"/> Flexible Exhaust Connector, Stainless Steel			
Controller		Warranty (Standby Applications only)	
<input type="checkbox"/> Input/Output, Digital		<input type="checkbox"/> 5-Year Basic Limited Warranty	
<input type="checkbox"/> Load Shed (APM802 only)		<input type="checkbox"/> 5-Year Comprehensive Limited Warranty	
<input type="checkbox"/> Manual Key Switch		<input type="checkbox"/> 10-Year Major Components Limited Warranty	
<input type="checkbox"/> Remote Emergency Stop Switch			
<input type="checkbox"/> Lockable Emergency Stop Switch			
<input type="checkbox"/> Remote Serial Annunciator Panel			
Cooling System		Other	
<input type="checkbox"/> Block Heater; 6000 W, 208 V, (select 1 Ph or 3 Ph) *		<input type="checkbox"/>	
<input type="checkbox"/> Block Heater; 6000 W, 240 V, (select 1 Ph or 3 Ph) *		<input type="checkbox"/>	
<input type="checkbox"/> 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.			
<input type="checkbox"/> Radiator Guard and Duct Flange			

## Dimensions and Weights

Overall Size, max., L x W x H, mm (in.): 4181 x 1924 x 2200 (164.6 x 75.7 x 86.6)  
Weight, radiator model, max. wet, kg (lb.): 7457 (16440)

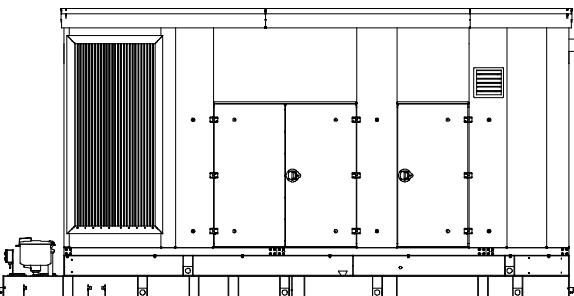


NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

## Sound Enclosures and Subbase Fuel Tank

### Sound Level 1 Enclosure Standard Features

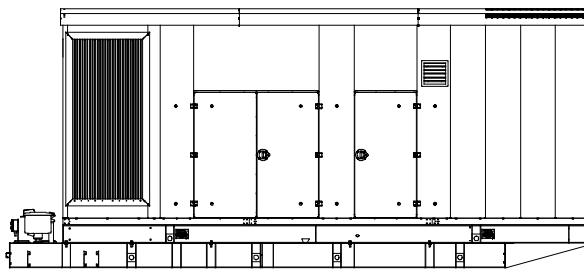
- Lift base or tank-mounted, aluminum construction enclosure with internal-mounted, exhaust silencers.
- Every enclosure has a sloped roof to reduce the buildup of moisture and debris.
- Sound attenuated enclosure that offers noise reduction using acoustic insulation, acoustic-lined air inlets and an acoustic-lined air discharge.
- Fade-, scratch-, and corrosion-resistant 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 1 Enclosure**  
(Shown with available spill containment)

### Sound Level 2 Enclosure Standard Features

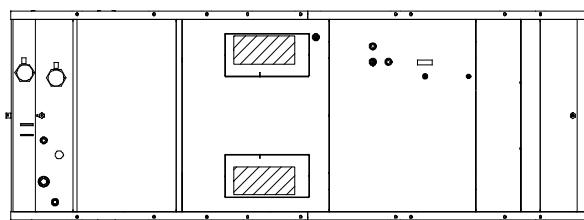
- Includes all of the sound level 1 enclosure features with the addition of up to 51 mm (2 in.) acoustic insulation material, intake sound baffles, vertical air discharge, and secondary silencers.
- Louvered air inlet and vertical outlet hood with 90 degree angles to redirect air and reduce noise.



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

### Subbase Fuel Tank Features

- The fuel tank has a black powder-coat finish texture.
- 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



**Subbase Fuel Tank (Top View)**