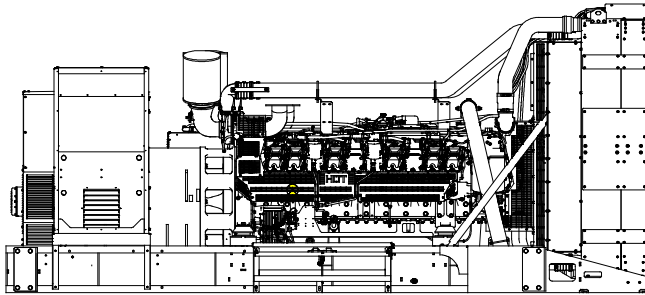


KDxxxx designates a generator set with a Tier 2 EPA-Certified engine.
KDxxxx-F designates a 60 Hz generator set with a fuel optimized engine.



Ratings Range

| | | |
|-----------------|------------|--------------|
| | | 60 Hz |
| Standby: | kW | 1410- 1600 |
| | kVA | 1762- 2000 |
| Prime: | kW | 1260- 1440 |
| | kVA | 1575- 1800 |



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 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 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:
 - 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 | GMKD1600 |
| Manufacturer | Kohler |
| Engine: model | KD45V20 |
| Alternator Choices | KH04590TO4D KH04920TO4D KH05641TO4D KH05740TO4D KH06721TO4D KH06810TO4D |
| Performance Class | Per ISO 8528-5 |
| One Step Load Acceptance | 100% |
| Voltage | Wye, 600 V., or 4160 V |
| Controller | APM603, APM802 |
| Fuel Tank Capacity, L (gal.) | 5863- 21985 (1549- 5808) |
| Fuel Consumption, L/hr (gal./hr) 100% at Standby | 423 (111.8) |
| Fuel Consumption, L/hr (gal./hr) 100% at Prime Power | 392 (103.5) |
| Emission Level Compliance (KDxxxx) | Tier 2 |
| Open Unit Noise Level @ 7 m dB(A) at Rated Load | 97 |
| Data Center Continuous (DCC) Rating (Refer to TIB-101 for definitions) | Same as the Standby Rating below |

Conscious Care™ Qualified

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

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 |
| KH04590TO4D | 240/416 | 3 | 60 | 1430/1788 | 2482 | 1410/1762 | 2446 | 1380/1725 | 2395 | 1260/1575 | 2186 |
| | 277/480 | 3 | 60 | 1600/2000 | 2406 | 1600/2000 | 2406 | 1440/1800 | 2166 | 1420/1775 | 2135 |
| | 230/400 | 3 | 60 | 1500/1875 | 2707 | 1500/1875 | 2707 | 1350/1688 | 2437 | 1350/1688 | 2437 |
| KH04920TO4D | 240/416 | 3 | 60 | 1600/2000 | 2776 | 1590/1988 | 2760 | 1440/1800 | 2499 | 1400/1750 | 2429 |
| | 277/480 | 3 | 60 | 1600/2000 | 2406 | 1600/2000 | 2406 | 1440/1800 | 2166 | 1440/1800 | 2166 |
| | 220/380 | 3 | 60 | 1600/2000 | 3039 | 1600/2000 | 3039 | 1440/1800 | 2735 | 1440/1800 | 2735 |
| KH05740TO4D | 230/400 | 3 | 60 | 1500/1875 | 2707 | 1500/1875 | 2707 | 1350/1688 | 2437 | 1350/1688 | 2437 |
| | 240/416 | 3 | 60 | 1600/2000 | 2776 | 1600/2000 | 2776 | 1440/1800 | 2499 | 1440/1800 | 2499 |
| | 277/480 | 3 | 60 | 1600/2000 | 2406 | 1600/2000 | 2406 | 1440/1800 | 2166 | 1440/1800 | 2166 |
| | 347/600 | 3 | 60 | 1600/2000 | 1925 | 1600/2000 | 1925 | 1440/1800 | 1733 | 1440/1800 | 1733 |

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 - KD1600

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 |
| KH0681TO4D | 220/380 | 3 | 60 | 1600/2000 | 3039 | 1600/2000 | 3039 | 1440/1800 | 2735 | 1440/1800 | 2735 |
| | 230/400 | 3 | 60 | 1500/1875 | 2707 | 1500/1875 | 2707 | 1350/1688 | 2437 | 1350/1688 | 2437 |
| | 240/416 | 3 | 60 | 1600/2000 | 2776 | 1600/2000 | 2776 | 1440/1800 | 2498 | 1440/1800 | 2499 |
| | 277/480 | 3 | 60 | 1600/2000 | 2406 | 1600/2000 | 2406 | 1440/1800 | 2166 | 1440/1800 | 2166 |
| | 347/600 | 3 | 60 | 1600/2000 | 1925 | 1600/2000 | 1925 | 1440/1800 | 1732 | 1440/1800 | 1732 |
| KH05641TO4D | 2400/4160 | 3 | 60 | 1600/2000 | 278 | 1600/2000 | 278 | 1440/1800 | 250 | 1440/1800 | 250 |
| KH06721TO4D | 2400/4160 | 3 | 60 | 1600/2000 | 278 | 1600/2000 | 278 | 1440/1800 | 250 | 1440/1800 | 250 |

| Engine Specifications | 60 Hz |
|--|------------------------------------|
| Manufacturer | Kohler |
| Engine: model | KD45V20 |
| Engine: type | 4-Cycle, Turbocharged, Intercooled |
| Cylinder arrangement | 20-V |
| Displacement, L (cu. in.) | 45 (2746) |
| 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 | 11, Precision Half Shells |
| Rated rpm | 1800 |
| Max. power at rated rpm, kWm (BHP) | 1755 (2353) |
| 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 with filter (dipstick max. mark), L (qt.) § | 165 (174) |
| Oil pan capacity with filter (initial fill), L (qt.) § | 180 (190) |
| Oil filter: quantity, type § | 4, 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.) | 19 (0.75) |
| Fuel return line, min. ID, mm (in.) | 12 (0.5) |
| Max. fuel flow, Lph (gph) | 585 (155) |
| 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** | 60 Hz | |
|---|-----------------------|-------------|
| Diesel, Lph (gph) at % load | Standby Rating | |
| | 100% | 423 (111.8) |
| | 75% | 334 (88.2) |
| | 50% | 235 (62.2) |
| Diesel, Lph (gph) at % load | Prime Rating | |
| | 100% | 392 (103.5) |
| | 75% | 303 (80.1) |
| | 50% | 215 (56.8) |
| 25% | | 127 (33.5) |
| ** Volumetric Fuel consumption is up to 4% higher when using HVO/RD than #2 ULSD. | | |

| Radiator System | 60 Hz |
|--|---------------------|
| Ambient temperature, °C (°F)* | 50 (122) 40 (104) |
| Radiator system capacity, including engine, L (gal.) | 303 (80) 278 (73.4) |
| Engine jacket water capacity, L (gal.) | 143 (37) |
| Engine jacket water flow, Lpm (gpm) | 2339 (618) |
| Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.) | 651 (37021) |
| Heat rejected to charge air cooler at rated kW, dry exhaust, kW (Btu/min.) | 481 (27354) |
| Charge cooling air inlet temperature at 25°C (77°F) ambient, °C (°F) | 234 (453) |
| Turbocharger boost (abs), bar (psi) | 3.57 (51.8) |
| Water pump type | Centrifugal |
| Fan diameter, including blades, mm (in.) | 1750 (68.9) |
| Fan, kWm (HP) | 70 (93.9) |
| Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ 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.) | — |
| Charge air cooler inlet/outlet (pipe dia. of flange), mm (in.) | — |
| Static head allowable above engine, kPa (ft. H ₂ 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 ³ /min. (cfm) | 341 (12042) |
| Exhaust temperature at rated kW at 25°C (77°F) ambient, dry exhaust, °C (°F) | 517 (962) |
| 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: 2 @ 8.4 kW, 24; Redundant (optional): 4 @ 8.4 kW, 24 |
| Battery, recommended cold cranking amps (CCA): | |
| Quantity, CCA rating each, type (with standard starters) | 4, 1110, AGM |
| Quantity, CCA rating each, type (with optional redundant starters) | 8, 1110, AGM |
| Battery voltage (DC) | 12 |

| Air Requirements | 60 Hz |
|--|--------------|
| Radiator-cooled cooling air, m ³ /min. (scfm)‡ | 2129 (75185) |
| Cooling air required for generator set when equipped with city water cooling or remote radiator, based on 14°C (25°F) rise, m ³ /min. (scfm)‡ | 1125 (39713) |
| Combustion air, m ³ /min. (cfm) | 123 (4343) |
| Heat rejected to ambient air: | |
| Engine, kW (Btu/min.) | 216 (12284) |
| Alternator, kW (Btu/min.) | 98 (5587) |

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

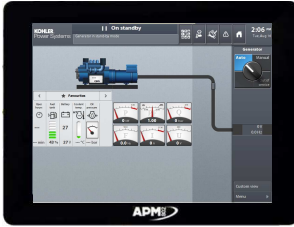
| Alternator Specifications | 60 Hz |
|--|--|
| Type | 4-Pole, Rotating-Field |
| Exciter type | Brushless, Permanent-Magnet Pilot Exciter |
| Voltage regulator | Solid-State, Volts/Hz |
| Insulation: | NEMA MG1, UL 1446, Vacuum Pressure Impregnated (VPI) |
| Material | Class H, Synthetic, Nonhygroscopic |
| Temperature rise | 130°C, 150°C Standby |
| Bearing: quantity, type | 1, Sealed |
| Coupling type | Flexible Disc |
| Amortisseur windings | Full |
| Alternator winding type (up to 600 V) | Random Wound |
| Alternator winding type (above 600 V) | Form Wound |
| Rotor balancing | 125% |
| Voltage regulation, no-load to full-load | ±0.25% |
| Unbalanced load capability | 100% of Rated Standby Current |
| Peak motor starting kVA: | (35% dip for voltages below) |
| 480 V | KH04590TO4D 6030 |
| 480 V | KH04920TO4D 6509 |
| 480 V | KH05740TO4D 6749 |
| 480 V | KH06810TO4D 8466 |
| 480 V | KH06810TO4D 8466 |
| 4160 V | KH05641TO4D NA |
| 4160 V | KH06721TO4D NA |

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 drip-proof 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 Pre-Approval
- cULus (UL 2200 and CSA)
- 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
- Generator Heater (4160 Volt)
- 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) | Operation |
| <input type="checkbox"/> Electronic Trip with Short Time (LSI) | <input type="checkbox"/> Manual |
| | <input type="checkbox"/> Electrically Operated (for paralleling) |

Circuit Breaker Mounting

- Bus Bar (for remote mounted breakers)

Enclosed Remote Mounted Circuit Breakers

- NEMA 3R (15- 1200 A)

Engine Type

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

Approvals and Listings

- California OSHPD Pre- Approval
 cULus (UL 2200 and CSA)
 IBC Seismic Certification
 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-361625 qty. 2)
 Exhaust Silencer, Hospital (kits: PA-361626 qty. 2)
 Flexible Exhaust Connector, Stainless Steel

Controller

- Input/Output, Digital
 Input/Output, Thermocouple (standard on 4160 V)
 Load Shed (APM802 only)
 Manual Key Switch
 Remote Emergency Stop Switch
 Lockable Emergency Stop Switch
 Remote Serial Annunciator Panel

Cooling System

- Block Heater; 9000 W, 208 V, (Select 1 Ph or 3 Ph) *
 Block Heater; 9000 W, 240 V, (Select 1 Ph or 3 Ph) *
 Block Heater; 9000 W, 380 V, 3 Ph *
 Block Heater; 9000 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. 4)
 Battery, AGM (kit with qty. 8)
 Battery Charger
 Battery Heater; 80 W, 120 V, 1Ph
 Battery Rack and Cables
 Generator Heater (up to 600 Volt)
 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
 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)

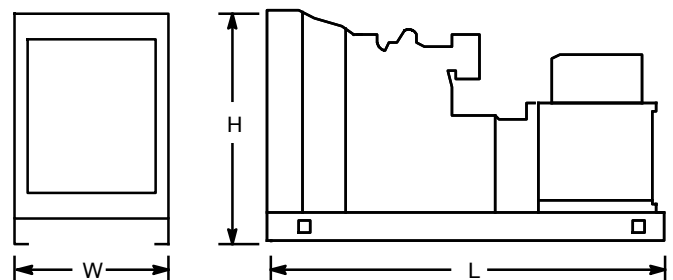
- 5-Year Basic Limited Warranty
 5-Year Comprehensive Limited Warranty
 10-Year Major Components Limited Warranty

Other

-

Dimensions and Weights

Overall Size, max., L x W x H, mm (in.): 5799 x 2382 x 2580
 (228.3 x 93.8 x 101.6)
 Weight, radiator model, max. wet, kg (lb.): 13123 (28943)



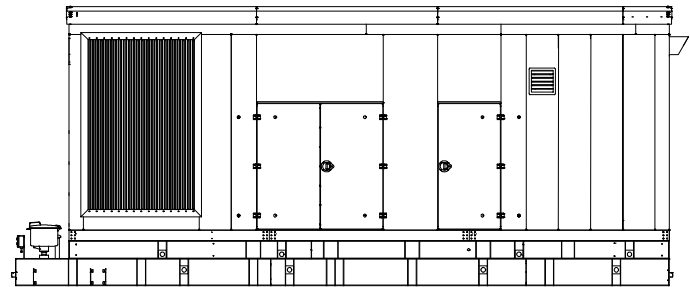
NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

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

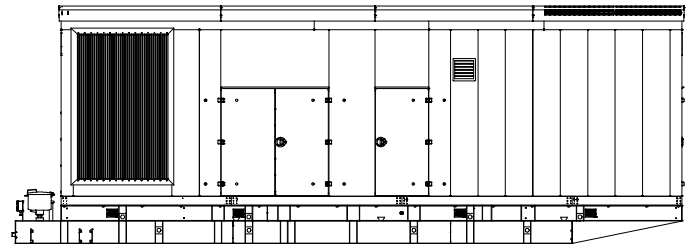
- Lift base or tank-mounted, aluminum construction enclosure with internal-mounted, exhaust silencers.
- Every enclosure has a sloped roof to reduce the buildup of moisture and debris.
- Sound attenuated enclosure that offers noise reduction using acoustic insulation, acoustic-lined air inlets and an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

Sound Level 2 Enclosure Standard Features

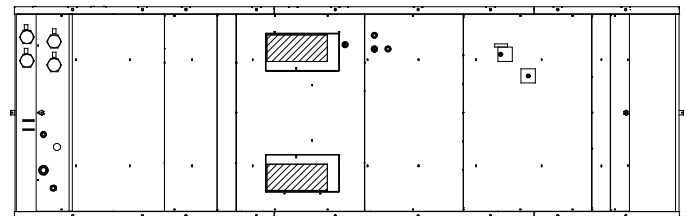
- Includes all of the sound level 1 enclosure features with the addition of up to 51 mm (2 in.) acoustic insulation material, intake sound baffles, vertical air discharge, and secondary silencers.
- Louvered air inlet and vertical outlet hood with 90 degree angles to redirect air and reduce noise.



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)

DISTRIBUTED BY: