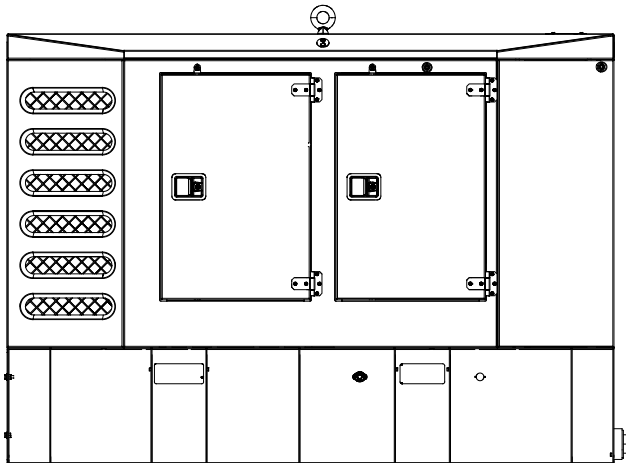




Tier 4 Final EPA-Certified for Stationary Emergency and Non-Emergency Applications

Ratings Range

		60 Hz
Standby:	kW	46-48
	kVA	46-60
Prime:	kW	42-43
	kVA	42-53
Continuous:	kW	42-43
	kVA	42-53



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 one-year limited warranty covers all generator set systems and components. Two- and five-year extended limited warranties are also available.
- Alternator features:
 - The unique Fast-Response® X excitation system delivers excellent voltage response and short-circuit capability using a rare-earth, permanent magnet (PM)-excited alternator.
 - The brushless, rotating-field alternator has broadrange reconnectability.
- Engine features:
 - Uses cooled Exhaust Gas Regeneration (EGR) and Diesel Oxidation Catalyst (DOC) to meet Tier 4 Final without a Diesel Particulate Filter (DPF).
 - Heavy-duty air cleaner with air restrictor indicator.
 - Lockable battery disconnect switch.
- Other features:
 - Kohler designed controller for guaranteed system integration and remote communication. See Controller on page 3.
 - The low coolant level shutdown prevents overheating.
 - Durable steel, sound-attenuating housing with quiet operation of 69 dB(A) log average @ 7 m (23 ft.) with full load at the prime rating.
 - Stainless steel hinges and lockable latches on doors.
 - 125% environmental containment basin for oil and coolant.
 - 110% secondary containment tank for fuel.
 - UL 142 listed subbase fuel tank for 24-hour run time with full load at the prime rating (minimum).
 - Customer connection panel with main circuit breaker, remote start connection, and emergency stop switch.

Generator Set Ratings

Alternator	Voltage	Ph	Hz	130°C Rise Standby Rating		105°C Rise Prime Rating		105°C Rise Continuous Rating	
				kW/kVA	Amps	kW/kVA	Amps	kW/kVA	Amps
4P8X	120/208	3	60	48/60	166	43/53	149	43/53	149
	120/240	3	60	46/57	138	42/52	126	42/52	126
	120/240	1	60	46/46	191	42/42	175	42/42	175
	277/480	3	60	48/60	72	43/53	64	43/53	64
	347/600	3	60	48/60	57	43/53	51	43/53	51

RATINGS: All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 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. *Continuous Ratings:* At constant or nonvarying load, the number of generator set operating hours is unlimited. There is no overload capability for this rating. Ratings are in accordance with ISO-8528-1 and ISO-3046-1. For limited running time 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
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Rare-Earth Permanent-Magnet
Leads: quantity, type	12, Reconnectable 6, 600 Volt
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H
Temperature rise	150°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load	±0.5%
One-step load acceptance	100% of Rating
Unbalanced load capability	100% of Rated Standby Current
Peak motor starting kVA @ 0.3 PF:	(35% dip for voltages below)
480 V	261
4P8X (12 lead)	

- 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.
- Windings are vacuum-impregnated with epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.

Application Data

Engine

Engine Specifications	
Manufacturer	Kohler Diesel
Engine model, type	KDI 3404 TCR 4-Cycle, Turbocharged, Charge Air Cooled
Cylinder arrangement	4 Inline
Displacement, L (cu. in.)	3.4 (207)
Bore and stroke, mm (in.)	96 x 116 (3.8 x 4.6)
Compression ratio	17.0:1
Piston speed, m/min. (ft./min.)	510 (1673)
Main bearings: quantity, type	5, Replaceable Insert
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	55.4 (74.3)
Cylinder head material	Cast Iron
Crankshaft material	Cast Iron
Valve material:	
Intake	Steel
Exhaust	Steel
Governor: type, make/model	Electronic
Frequency regulation, no-load to full-load	Isochronous
Frequency regulation, steady state	±0.5%
Frequency	Fixed
Air cleaner type, all models	Dry

Exhaust

Exhaust System	
Exhaust manifold type	Dry
Exhaust flow at rated kW, m ³ /min. (cfm)	9.5 (335)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	440 (824)
Allowable back pressure, kPa (in. Hg)	8-14 (2.4-4.1)
Exhaust outlet size at engine hookup, mm (in.)	63.5 (2.5)

Engine Electrical

Engine Electrical System		
Battery charging alternator:		
Ground (negative/positive)		Negative
Volts (DC)		14
Ampere rating		90
Starter motor rated voltage (DC)		12
Battery, recommended cold cranking amps (CCA):		
Quantity, CCA rating		One, 950
Battery voltage (DC)		12

Fuel

Fuel System		
Fuel supply line, min. ID, mm (in.)		8 (0.31)
Fuel return line, min. ID, mm (in.)		8 (0.31)
Max. lift, fuel pump: type, m (ft.)		Mechanical, 3.0 (10)
Max. fuel flow, Lph (gph)		11.9 (3.1)
Max. return line restriction, kPa (in. Hg)		0.6 (17.7)
Fuel prime pump		Manual
Fuel filter		
Primary		5 Microns @ 95% Efficiency
Water Separator		Yes
Recommended fuel		ASTM D975 or EN 590 Ultra Low Sulfur Diesel (ULSD) with sulfur content <15 mg/kg (15 ppm)

Lubrication

Lubricating System		
Type		Full Pressure
Oil pan capacity, L (qt.)		15.1 (16.0)
Oil pan capacity with filter, L (qt.)		15.6 (16.5)
Oil filter: quantity, type		One, Cartridge
Oil cooler		Water-Cooled
Oil type		API CJ-4 or ACEA E6-E9

Application Data

Cooling

Radiator System

Ambient temperature at standby rating, °C (°F)	40 (104)
Ambient temperature at prime power and continuous ratings, °C (°F)	45 (113)
Engine jacket water capacity, L (gal.)	4.6 (1.2)
Radiator system capacity, including engine, L (gal.)	12 (3.2)
Engine jacket water flow, Lpm (gpm)	120 (31.7)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	37 (2104)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	597 (23.5)
Fan, kWm (HP)	1.6 (2.1)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)

Operation Requirements

Air Requirements

Radiator-cooled cooling air, m ³ /min. (scfm) *	130 (4600)
Combustion air, m ³ /min. (cfm)	4.1 (145)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	13 (740)
Alternator, kW (Btu/min.)	8.9 (505)
* Air density = 1.20 kg/m ³ (0.075 lbm/ft ³)	

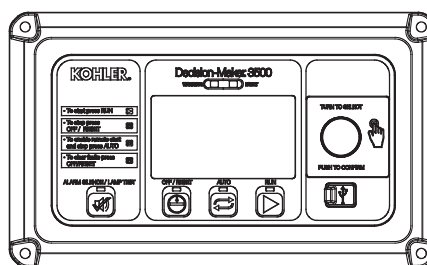
Fuel Consumption

Diesel, Lph (gph) at % load	Standby Rating
100%	14.2 (3.8)
75%	10.9 (2.9)
50%	7.7 (2.0)
25%	4.6 (1.2)
Diesel, Lph (gph) at % load	Prime Rating
100%	12.9 (3.4)
75%	9.6 (2.5)
50%	6.4 (1.7)
25%	3.2 (0.8)
Diesel, Lph (gph) at % load	Continuous Rating
100%	12.9 (3.4)
75%	9.6 (2.5)
50%	6.4 (1.7)
25%	3.2 (0.8)

Sound Enclosure

- Durable steel, sound-attenuating housing with quiet operation of 69 dB(A) log average @ 7 m (23 ft.) with full load at the prime rating.
- Internal-mounted silencer and flexible exhaust connector.
- Fade-, scratch, and corrosion-resistant Kohler® Power Armor™ automotive-grade textured finish.
- Stainless steel hinges and lockable latches on doors.
- Acoustic insulation that meets UL 94 HF1 flammability classification and repels moisture absorption.

Controller



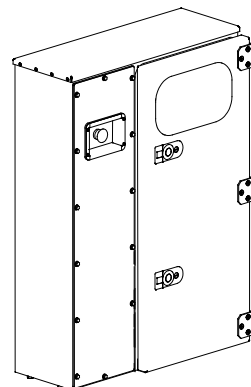
Decision-Maker® 3500 Controller

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

- Digital display with adjustable contrast and menu control provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or serial configuration
- Controller supports Modbus® protocol
- Integrated hybrid voltage regulator with ±0.5% regulation
- Potted circuitry for protection from vibration and debris
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Modbus® is a registered trademark of Schneider Electric.

Customer Connection Panel



- Viewable generator set controller with security cover
- Emergency stop switch
- Main line circuit breaker
 - Reconnectable models: Rating 250 amps, field adjustable based on voltage selected
 - 600 Volt models: Rating 60 amps, field adjustable
- Power connections for Available Options (battery charger and battery heater)
- Remote start connection

Fuel Tank

- Subbase fuel tank for 24-hour run time with full load at prime rating (minimum).
- Fuel tank includes the fuel level gauge, fuel fill with lockable cap, and normal/emergency vents.
- Both the inner and outer tanks have emergency relief vents.
- The secondary 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.

Fuel Tank Specifications

Fuel tank capacity	386 L (102 gal.)
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Standard Features

- Alternator Protection
- Battery, Battery Rack, and Cables
- Integral Vibration Isolation
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature

Available Options

Approvals and Listings

- CSA Certified
- UL 2200 Listing (requires standard skid)

Controller

- 15-Relay Dry Contact

Electrical System

- Battery Charger, Equalize/Float Type
- Battery Heater Pad and Wrap
- Block Heater; 1000 W, 120 V, 1 ph.

Fuel System

- Two-Way Fuel Valve
(for connection of a user-supplied external fuel tank)

Skid

- Field Draggable Skid
(heavy gauge steel skid with integrated drains and pull bars)
- Load Lugs (one per phase #6-350MCM, 400 amp)

Miscellaneous

- Engine Fluids Added
- Spark Arrestor

Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

Warranty

- 2-Year Basic Limited
- 2-Year Prime Limited
- 5-Year Basic Limited
- 5-Year Comprehensive Limited

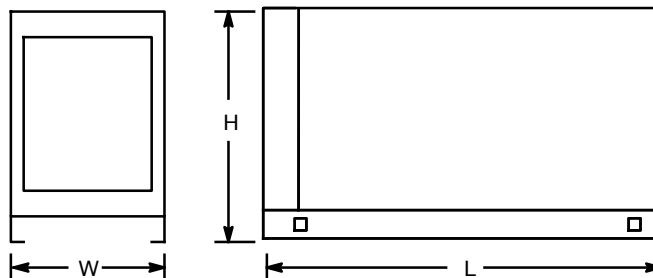
Other Options

- _____
- _____
- _____
- _____
- _____

Dimensions and Weights

Overall Size, L x W x H, mm (in.): 2504 x 1120 x 1895
 Standard Skid (98.6 x 44.1 x 74.6)
 Weight, with engine fluids (no fuel), kg (lb.): 1989 (4385)

Overall Size, L x W x H, mm (in.): 2809 x 1120 x 1895
 Field Draggable Skid (110.6 x 44.1 x 74.6)
 Weight, with engine fluids (no fuel), kg (lb.): 2000 (4410)



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

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