



The Kohler® Advantage

- **High Quality DC Power**
 - 6 kW DC generator designed specifically for renewable energy applications and other remote applications
 - Provides consistent DC output to maintain battery banks directly without inefficient conversions from alternating current
 - Can be used for industrial battery bus support to reduce the size of battery banks
- **Quiet and Economical**
 - Variable speed helps to keep noise low and reduce fuel consumption as compared to fixed-speed AC generators
 - Generator can maintain batteries directly without the need for an expensive converter or monitoring equipment
- **Flexible**
 - Generator senses when battery bank is running low and automatically turns on to maintain batteries when renewable energy sources cannot keep up with demand
 - Generator can also be set up to turn on when the renewable system's inverter sends a signal
 - Compatible with positive or negative grounded systems
 - 24, 36, and 48 volt configurations
- **Reliable**
 - 18-month/1000-hour warranty for off-grid applications
 - 5-year/2000-hour warranty for on-grid applications

Standard Features

- **VSC Controller**
 - Electronic speed control responds quickly to varying demand
 - Backlit LCD display with adjustable contrast is easy to read in direct sunlight or low light
- **Certifications**
 - Meets emission regulations for U.S. Environmental Protection Agency (EPA) phase 2 small off-road engines and CA 2011 and later LSI engines with both LPG and natural gas
 - UL 2200 listed
 - CSA certification available
- **Optional Accessories Available**
 - Programmable Interface Module (PIM): provides 2 inputs and 6 outputs for custom control of circuits (available only if communications kit is not installed)
 - OnCue® Generator Management System: allows remote monitoring and control of the generator from anywhere in the world
 - Oil Make-Up Kit: extends the time between oil changes to 250 hours
- **Optional Communications Kit Available**
 - Factory-installed inside the generator set
 - Enclosure intrusion alarm
 - Low fuel pressure switch
 - Interface board with 2 inputs and 6 outputs
 - Factory-programmed inputs and outputs:
 - Input 1: Fuel Pressure Low Warning
 - Input 2: Enclosure Intrusion Alarm
 - Output 1: Run
 - Output 2: Common Fault
 - Output 3: Battery Voltage Low
 - Output 4: Fuel Pressure Low Warning
 - Output 5: Enclosure Intrusion Alarm Warning
 - Output 6: Reserve Oil Empty (oil make-up kit required)

Generator Ratings

Model	Nominal Voltage VDC	Output Voltage VDC	Ratings	
			Natural Gas and LPG kW	Amps
6 VSG	24	27	6	222
	36	40.5	6	148
	48	54	6	111

RATINGS: Ratings are in accordance with ISO-3046/1, BS5514, AS2789, and DIN 6271. GENERAL GUIDELINES FOR DERATING: ALTITUDE: Derate 4% per 305 m (1000 ft.) elevation above 915 m (3000 ft.). TEMPERATURE: Rated at 6 kW for the entire operating range, -29 to 49°C (-20 to 120°F).

Availability is subject to change without notice. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. Contact your local Kohler Co. generator distributor for availability.

Alternator Specifications

Alternator Specifications

Specifications	6VSG
Manufacturer	Kohler
Leads, quantity	3
Insulation:	NEMA MG1-1.66
Material	Class H
Temperature rise	Class H
Bearing: quantity, type	1, Sealed Ball
Coupling	Direct
Amortisseur windings	Full
Voltage regulation, no-load to full-load	± 0.5 V
One-step load acceptance	100% of Rating
High frequency DC ripple	less than 1 VRMS with batteries connected

Alternator Features

- NEMA, IEEE, and ANSI standards compliance for temperature rise
- Self-ventilated and drip-proof construction
- Vacuum-impregnated windings with fungus-resistant epoxy varnish for dependability and long life
- Brushless three-phase PMG alternator with neodymium/iron/boron permanent magnet excitation

Application Data

Engine

Engine Specifications	6VSG
Manufacturer	Kohler
Engine: model, type	CH740 4-Cycle
Cylinder arrangement	V-2
Displacement, cm ³ (cu. in.)	725 (44)
Bore and stroke, mm (in.)	83 x 67 (3.27 x 2.64)
Compression ratio	9:1
Main bearings: quantity, type	2, Parent Material
Rated RPM	2300-2900
Maximum engine power, kW (HP)*	
LPG	15.8 kW (21.2 HP)*
Natural Gas	13.8 kW (18.5 HP)*
* Current-limited to 6 kW	
Cylinder head material	Aluminum
Valve material	Steel/Stellite®
Piston type and material	Aluminum Alloy
Crankshaft material	Heat Treated, Ductile Iron
Governor: type	Electronic
Frequency regulation, no load to full load	Isochronous
Frequency regulation, steady state	±0.5%
Air cleaner type	Dry

Exhaust

Exhaust System	6VSG
Exhaust temperature exiting the enclosure at rated kW, dry	104°C (220°F)

Engine Electrical

Engine Electrical System	6VSG
Ignition system	Electronic, Capacitive Discharge
Starter motor rated voltage (DC)	12
Battery Charging Alternator	
Ground	Negative
Volts (DC)	12
Amps (DC)	15
Engine Starting Battery *	
Ground	Negative
Volts (DC)	12
Battery quantity	1
Recommended cold cranking amps: (CCA) rating for -18°C (0°F)	500
Group size	51
* Battery not included with the generator set. Available as loose accessory from Kohler Co.	

Lubrication

Lubricating System	6VSG
Type	Full Pressure
Oil capacity (with filter), L (qt.)	1.9 (2.0)
Oil filter: quantity, type	1, Cartridge
Oil cooler	Integral

Fuel Pipe Size

Minimum Gas Pipe Size Recommendation, in. NPT		
Pipe Length, m (ft.)	Natural Gas 115,000 Btu/hr.	LPG 106,000 Btu/hr.
8 (25)	3/4	1/2
15 (50)	1	3/4
30 (100)	1	3/4
46 (150)	1	3/4
61 (200)	1	1

Fuel Requirements

Fuel System	6VSG
Fuel types	Natural Gas or LPG
Fuel supply inlet	1/2 NPT
Fuel supply pressure, kPa (in. H ₂ O):	
Natural gas	1.2-2.7 (5-11)
LPG	1.7-2.7 (7-11)

Fuel Composition Limits *	Nat. Gas	LPG
Methane, % by volume (minimum)	90 min.	—
Ethane, % by volume (maximum)	4.0 max.	—
Propane, % by volume	1.0 max.	85 min.
Propene, % by volume (maximum)	0.1 max.	5.0 max.
C ₄ and higher, % by volume	0.3 max.	2.5 max.
Sulfur, ppm mass (maximum)	25 max.	
Lower heating value, MJ/m ³ (Btu/ft ³), min.	33.2 (890)	84.2 (2260)

* Contact your local distributor for suitability and rating derates based on fuel compositions outside these limits.

Operation Requirements

Fuel Consumption			
Model	Fuel Type	% Load	Fuel Consumption, m ³ /hr. (cfh)
6VSG	Natural Gas	100	3.3 (116)
		75	2.7 (96)
		50	2.1 (75)
		25	1.8 (62)
	LPG	100	1.2 (42)
		75	1.0 (35)
	50	0.9 (32)	
	25	0.7 (27)	

Nominal fuel rating: Natural gas: 37 MJ/m³ (1000 Btu/ft.³)
LPG: 93 MJ/m³ (2500 Btu/ft.³)

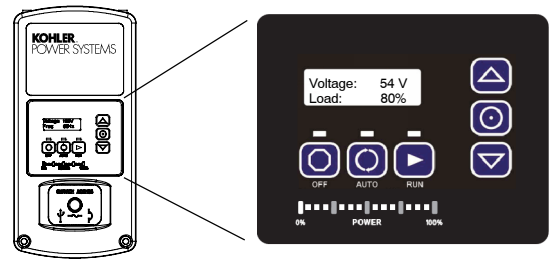
LPG conversion factors: 8.58 ft.³ = 1 lb.
0.535 m³ = 1 kg
36.39 ft.³ = 1 gal.

Sound Data

All sound levels are measured at 7 meters.

Average Sound Levels at 7 m (23 ft.)	
Load	dBA
No load	58
50%	61
100%	65

VSC Controller



The VSC controller provides integrated control for the 6VSG generator set and programmable interface module (PIM) or communications kit.

The VSC controller's LCD screen displays status messages and system settings that are clear and easy to read in direct sunlight or low light.

VSC Controller Features

- Membrane keypad
 - OFF, AUTO, and RUN pushbuttons
 - Select and arrow buttons for access to system configuration and adjustment menus
- LED indicators for OFF, AUTO, and RUN modes
- LED indicators for % load readings
- LCD display
 - Two lines x 16 characters per line
 - Backlit display with adjustable contrast for excellent visibility in all lighting conditions
- Scrolling system status display
 - Generator set status
 - Voltage and % load
 - Engine temperature
 - Oil pressure status
 - Engine starting battery voltage
 - Engine runtime hours
- Date and time displays
- Smart engine cooldown senses engine temperature
- Variable speed maintains fixed DC voltage with varying load
- User-adjustable low battery limit
- System settings
 - System voltage (DC)
 - Voltage calibration
 - Auto start battery bank voltage limit
 - Auto stop output current
 - System current limit
- Automatic start with programmed cranking cycle
- Remote two-wire start/stop capability for optional connection to a third-party inverter
- Programmable exerciser can be set to start automatically on any future day and time and run every week or every two weeks
- Front-access mini USB connector for SiteTech™ connection
- Integral Ethernet connector for Kohler® OnCue® system
- Built-in 2.5 amp battery charger for engine starting battery (powered by 120 VAC, 50/60 Hz source)

Additional VSC Controller Features

- Diagnostic messages
 - Displays diagnostic messages for the engine, generator, and programmable interface module (PIM) or communications kit
 - Over 70 diagnostic messages can be displayed
- Maintenance reminders
- Programmable Interface Module (PIM) or communications kit status displays
 - Input status (active/inactive)
 - Output status (active/inactive)

Generator Set Standard Features

- Generator starting battery cables
- CARB- and EPA-certified fuel system
- 16 gauge powder-coated steel enclosure
- Critical silencer
- Field-connection terminal block
- Fuel solenoid valve and secondary regulator
- Line circuit breaker:
 - 24 V: 250 amps
 - 36 V: 175 amps
 - 48 V: 125 amps
- Multi-fuel system, LPG/natural gas, field-convertible
- Oil drain extension with shutoff valve
- 18-month limited warranty for non-standby (off-grid) applications
- 5-year limited warranty for standby (on-grid) applications
- Rodent-resistant construction
- Sound-deadening, flame-retardant foam per UL 94, class HF-1

Available Options

Communication Accessories

- OnCue® Generator Management System
- Communications kit (factory-installed)

Electrical System

- Engine starting battery

Fuel System

- Braided stainless steel flexible fuel line (included with QS models)

Literature

- General maintenance literature kit
- Overhaul literature kit
- Production literature kit

Starting Aids

- Carburetor heater, 120 VAC (recommended for reliable starting at temperatures below 0°C [32°F])

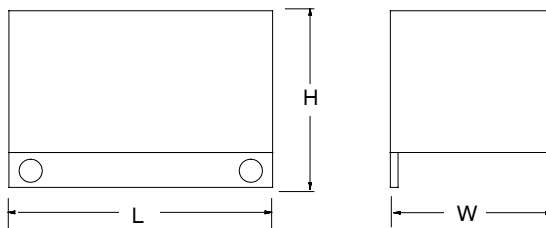
Miscellaneous Accessories

- Oil makeup kit
- Programmable interface module (PIM)
 - Provides 2 digital inputs and 6 relay outputs
 - Available only if communications kit is *not* installed
- _____
- _____

Generator Set Dimensions and Weights

Overall Size, L x W x H: 1008 x 707 x 723 mm
 (39.7 x 27.8 x 28.5 in.)

Shipping Weight: 191 kg (420 lb.)



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

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