

# KOHLER POWER SYSTEMS

Multi-Fuel  
LP Vapor/Natural Gas



## The Kohler® Advantage

- Best-in-Class Power Quality**  
 Kohler home generators provide industry-leading voltage and frequency regulation along with ultra-low levels of harmonic distortion for the best generator power quality you can get to protect your prized electronics.
- Extraordinary Reliability**  
 Kohler is known for extraordinary reliability and performance and backs that up with an industry-leading 5-year or 2000 hour warranty.
- Powerful Performance**  
 Exclusive Powerboost™ technology provides greater starting power. The Kohler 14 kW generator can easily start and run a 5 ton air conditioner without dropping power to other appliances — an unheard-of feat in other generators of this size.\*
- Exclusive 100% Corrosion-Proof Enclosure**  
 Unlike aluminum or steel enclosures, the bold new Kohler design is completely corrosion proof, even in harsh seaside environments, and is impact-resistant even at -34° C (-30° F).
- Faster Response**  
 Kohler home generators restore power to your home 2-3 times faster than competitive models.
- Quiet Operation**  
 Kohler home generators provide quiet neighborhood-friendly performance. Now you will experience even quieter operation during the weekly variable-speed exercise with complete system diagnostics.

## Standard Features

- RDC Residential Digital Control**
  - One digital controller manages both the generator set and transfer switch functions (with optional Model RRT transfer switch)
  - Designed for today's most sophisticated electronics
  - Electronic speed control responds quickly to varying household demand
  - Digital voltage regulation protects your sensitive electronics from harmonic distortion and unstable power quality
  - LED display shows system status and setup information
- Kohler Command PRO Engine Features**
  - Kohler Command PRO® OHV engine with hydraulic valve lifters for reliable performance without routine valve adjustment or lengthy break-in requirements
  - Powerful, reliable air-cooled performance
  - Simple field conversion between natural gas and LP vapor fuels while maintaining emission certification
- Designed for Easy Installation**
  - Polymer base eliminates the need for a concrete mounting pad, reducing installation time and cost
  - Hinged, locking roof
  - Fuel and electrical connections through the enclosure wall eliminate the need for stub-ups through the bottom
  - Load connection terminal block allows easy field wiring
  - Designed for outdoor installation only
- Certifications**
  - Meets emission regulations for U.S. Environmental Protection Agency (EPA) phase 2 small off-road engines and CA 2006 and later LSI engines with both LP vapor and natural gas
  - UL 2200 listed (60 Hz model)
  - CSA certification available (60 Hz model)
  - Approved for stationary standby applications in locations served by a reliable utility source

## Generator Ratings

Model	Voltage	Phase	Hz	Alternator	Standby Ratings			
					Natural Gas		LP Gas	
					kW/kVA	Amps	kW/kVA	Amps
14RES	120/240	1	60	2F5	12/12	50.0	14/14	58.3
	115/230	1	50	2F5	10/10	43.5	11/11	47.8
20RES	120/240	1	60	2F7	18/18	75.0	20/20	83.3
	115/230	1	50	2F7	13/13	56.5	14/14	60.8

RATINGS: Standby ratings apply to installations served by a reliable utility source. All single-phase units are rated at 1.0 power factor. The standby rating is applicable to variable loads with an average load factor of 80% for the duration of the power outage. No overload capacity is specified at this rating. 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 153 m (500 ft.). **TEMPERATURE:** Derate 2% per 5.5°C (10°F) temperature increase above 16°C (60°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.

\* Check the appliance manufacturer's specifications for actual power requirements. Consult a Kohler® Power Systems professional to calculate your exact residential power system requirements.

# Application Data

## Engine

Engine Specifications	14RES	20RES
Manufacturer	Kohler	
Engine: model, type	CH740 4-Cycle	CH1000 4-Cycle
Cylinder arrangement	V-2	
Displacement, cm <sup>3</sup> (cu. in.)	725 (44)	999 (61)
Bore and stroke, mm (in.)	83 x 67 (3.27 x 2.64)	90 x 78.5 (3.54 x 3.1)
Compression ratio	9:1	8.8:1
Main bearings: quantity, type	2, Parent Material	
Rated RPM		
60 Hz	3600	
50 Hz	3000	
Max. engine power at rated rpm, kW (HP)		
LP vapor, 60 Hz	17.6 (23.6)	23.0 (30.9)
LP vapor, 50 Hz	15.8 (21.2)	20.0 (26.8)
Natural gas, 60 Hz	15.3 (20.5)	20.2 (27.1)
Natural gas, 50 Hz	13.8 (18.5)	16.8 (22.5)
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	

## Engine Electrical

Engine Electrical System	14RES	20RES
Ignition system	Electronic, Capacitive Discharge	
Starter motor rated voltage (DC)	12	
Battery (purchased separately):		
Ground	Negative	
Volts (DC)	12	
Battery quantity	1	
Recommended cold cranking amps: (CCA) rating for -18°C (0°F)	500	
Group size	51	

## Fuel Consumption

Fuel Consumption, m <sup>3</sup> /hr. (cfh)		14RES		20RES	
Fuel Type	% Load	60 Hz	50 Hz	60 Hz	50 Hz
Natural Gas	100%	5.4 (193)	4.9 (175)	8.0 (281)	6.4 225
	75%	4.7 (163)	4.2 (148)	6.9 (243)	5.4 189
	50%	3.5 (124)	3.1 (108)	4.6 (161)	3.9 139
	25%	2.6 (93)	2.4 (84)	3.6 (127)	2.9 103
LP Vapor	100%	2.3 (81)	2.1 (74)	3.9 (136)	2.9 102
	75%	2.1 (75)	1.9 (68)	3.1 (109)	2.4 85
	50%	1.8 (60)	1.5 (53)	2.3 (82)	1.8 63
	25%	1.2 (45)	1.1 (40)	1.7 (59)	1.3 47

LP vapor conversion factors:  
 8.58 ft.<sup>3</sup> = 1 lb.  
 0.535 m<sup>3</sup> = 1 kg  
 36.39 ft.<sup>3</sup> = 1 gal.

Nominal fuel rating:  
 Natural gas: 37 MJ/m<sup>3</sup> (1000 Btu/ft.<sup>3</sup>)  
 LP vapor: 93 MJ/m<sup>3</sup> (2500 Btu/ft.<sup>3</sup>)

## Exhaust

Exhaust System	14RES	20RES
Exhaust temperature exiting the enclosure at rated kW, dry, °C (°F)	260 (500)	

## Lubrication

Lubricating System	14RES	20RES
Type	Full Pressure	
Oil capacity (with filter), L (qt.)	1.9 (2.0)	2.8 (3.0)
Oil filter: quantity, type	1, Cartridge	
Oil cooler	Integral	

## Fuel Requirements

Fuel System	14RES	20RES
Fuel types	Natural Gas or LP Vapor	
Fuel supply inlet	1/2 NPT	
Fuel supply pressure, kPa (in. H <sub>2</sub> O):		
Natural gas	1.2-2.7 (5-11)	
LP	1.7-2.7 (7-11)	
Fuel flow rates, Btu/hr.		
Natural gas	193,000	281,000
LP	203,000	340,000

## Fuel Pipe Size

Pipe Length, m (ft.)	Minimum Gas Pipe Size Recommendation, in. NPT			
	14RES	20RES		
	Natural Gas (193,000 Btu/hr.)	LP Vapor (203,000 Btu/hr.)	Natural Gas (281,000 Btu/hr.)	LP Vapor (340,000 Btu/hr.)
8 (25)	3/4	3/4	1	3/4
15 (50)	1	3/4	1	1
30 (100)	1	1	1 1/4	1
46 (150)	1 1/4	1	1 1/4	1 1/4
61 (200)	1 1/4	1	1 1/4	1 1/4

# Alternator

## Alternator Features

- Compliance with NEMA, IEEE, and ANSI standards for temperature rise
- Self-ventilated and dripproof construction
- Vacuum-impregnated windings with fungus-resistant epoxy varnish for dependability and long life
- Superior voltage waveform and minimum harmonic distortion from skewed alternator construction
- Digital voltage regulator with  $\pm 1.5\%$  no-load to full-load RMS regulation
- Rotating-field alternator with static exciter for excellent load response
- Skewed generator construction produces a smooth AC waveform

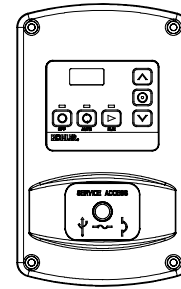
## Alternator Specifications

Specifications	PowerBoost™ Generator 1-Phase
Manufacturer	Kohler
Output reconnectable	120/240
Type	2-Pole, Rotating Field
Leads, quantity	4
Voltage regulator	Digital
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 RMS	$\pm 1.5\%$
One-step load acceptance	100% of Rating
Peak motor starting kVA @ 240 V:	
14RES	35
20RES	40.5

## Sound Data

Model	Sound Level at 7 m	
	Low Speed No Load	Full Speed No Load
14RES	66 dBA	70 dBA
20RES	68 dBA	73 dBA

# RDC Residential Digital Controller



## Controller Features

- Integrated control for the generator set and Kohler® Model RRT transfer switch
- Membrane keypad:
  - OFF, AUTO, and RUN pushbuttons
  - Exercise/down arrow pushbutton
  - Select and arrow buttons for password-protected access to system configuration and adjustment menus
  - System voltage/frequency selection and engine configuration
  - Voltage, gain, and engine speed adjustment
- OFF, AUTO, and RUN LED indicators
- LED display:
  - Scrolling system status display includes engine runtime hours, battery voltage, generator voltage, engine temperature, and utility voltage \*
  - Crank cycle status
  - Setup information
  - Firmware version
  - Faults
  - Event history
- Faults displayed:
  - Auxiliary fault
  - ATS communication error
  - High battery voltage
  - High engine temperature
  - Internal faults
  - Locked rotor
  - Loss of generator AC sensing
  - Low battery voltage
  - Low cranking battery voltage
  - Low oil pressure
  - Overcrank
  - Overfrequency
  - Overspeed
  - Overvoltage
  - Speed sensor fault
  - Underfrequency
  - Underspeed
  - Undervoltage
- Exercise modes
  - Unloaded quiet variable-speed exercise with complete system diagnostics
  - Loaded full-speed exercise (ATS required)
- Smart engine cooldown senses engine temperature
- Remote two-wire start/stop capability for optional connection of Model RDT or RSB transfer switches
- Digital isochronous governor to maintain steady-state speed at all loads
- Digital voltage regulation:  $\pm 1.5\%$  RMS no-load to full-load
- Automatic start with programmed cranking cycle
- Field-upgradeable firmware †
- Front-access mini USB connector for firmware upgrade
- Front access fuses and mini-breaker

\* Model RRT transfer switch required

† Requires Kohler® SiteTech™ software

## Standard Features

- 6-amp battery charger (60 Hz models only)
- Battery cables
- CARB- and EPA-certified fuel system
- Corrosion-proof polymer sound enclosure
- Critical silencer
- Field-connection terminal block
- Fuel solenoid valve and secondary regulator
- Line circuit breaker
- Multi-fuel system, LP vapor/natural gas, field-convertible
- Oil drain extension with shutoff valve
- Premium 5-year limited warranty
- RDC generator set/ATS controller
- Rodent-resistant construction
- Sound-deadening, flame-retardant foam per UL 94, class HF-1

## Available Accessories

### Communication Accessories

- OnCue Home™ Generator Management System

### Electrical System

- Battery
- Battery heater

### Fuel System

- Gas strainer
- Braided stainless steel flexible fuel line

### Maintenance

- Maintenance kit (air and oil filters)
- 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])

### Kohler® Automatic Transfer Switch

- Model RRT, see specification sheet G11-120
- Model RDT, see specification sheet G11-98
- Model RSB, see specification sheet G11-101
- Other Kohler® ATS

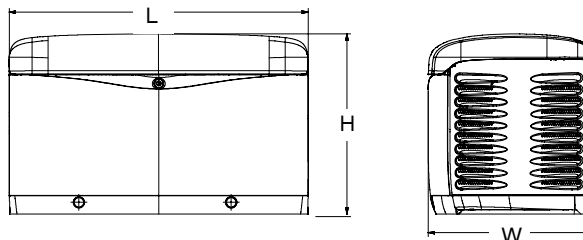
### Miscellaneous Accessories

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

## Generator Set Dimensions and Weights

Overall Size, L x W x H: 1216 x 665 x 733 mm  
 (48 x 26.2 x 29 in.)

Weight: 14RES 186 kg (410 lb.)  
 20RES 227 kg (500 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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