Models: 8.5/12RES

KOHLER POWER SYSTEMS

Multi-Fuel
LP Vapor/Natural Gas

Standard Features

- Powerful
  - The Kohler 12 kW generator is powerful enough to start and run a typical 4 ton (48,000 BTU) central air conditioner, as well as other home appliances and electronics *
- Designed for easy installation
  - Polymer base eliminates the need for a concrete mounting pad, reducing installation time and cost
  - Fuel and electrical connections through the enclosure wall eliminate the need for stub-ups through the bottom
- Quiet
  - Quiet operation: 65 dB(A) at 7 m, similar to a typical vacuum cleaner
  - Sound enclosure maintains neighborhood solitude
  - Internal exhaust system with a USDA Forest Service-approved spark arrestor
- ADC 2100 Advanced Digital Control is designed for today's most sophisticated electronics
  - Digital electronic isochronous governor
  - Digital voltage regulator
  - LED display provides diagnostic capability
- Engine features
  - Digital Spark Advance Module (DSAM) optimizes engine performance for natural gas and LP vapor fuels (12RES only)
  - Simple field-conversion between natural gas and LP vapor fuels while maintaining emission certification
- AC-powered 6-amp battery charger
- Integral vibration isolation
- Rodent-proof construction

ISO 9001 KOHLER POWER SYSTEMS NATIONALLY REGISTERED

- UL 2200 listed (60 Hz models)
- UL listed to Canadian safety standards (60 Hz models)
- Emission Certifications (60 Hz models):
  - California Air Resources Board (CARB)-certified for both LP vapor and natural gas (field-convertible)
  - Meets Environmental Protection Agency (EPA) nonstationary unit requirements
- Kohler Co. provides one-source responsibility for the generating system and accessories
- Generator set and components are prototype-tested, factory-built, and production-tested
- Premium five-year limited warranty included

Generator Ratings

Model Series	Voltage	Phase	Hz	Generator Model	Standby Amps		Standby Ratings, kW/kVA	
					Natural Gas	LP Gas	Natural Gas	LP Gas
8.5RES	120/240	1	60	2F4	29	35	7.0/7.0	8.5/8.5
8.5RES	115/230	1	50	2F4	27	33	6.3/6.3	7.5/7.5
12RES	120/240	1	60	2F4	43	50	10.4/10.4	12.0/12.0
12RES	115/230	1	50	2F4	40	46	9.3/9.3	10.5/10.5

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 1.5% per 5.5°C (10°F) temperature increase above 16°C (60°F). Availability is subject to change without notice. Kohler Co. 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.

* Due to the cycling operation of many electrical appliances, the generator set may not run all appliances simultaneously. Check the appliance manufacturer's specifications for actual power requirements. Consult a Kohler® Power Systems professional for your exact residential power system requirements.

Application Data

Engine

Engine Specifications	60 Hz	50 Hz
Manufacturer	Kohler	
Engine: model, type		
8.5RES	CH20 4-Cycle	
12RES	CH740 4-Cycle	
Cylinder arrangement	V-2	
Displacement, L (cu. in.)		
8.5RES	0.624 (38)	
12RES	0.725 (44)	
Bore and stroke, mm (in.)		
8.5RES	77 x 67 (3.03 x 2.64)	
12RES	83 x 67 (3.27 x 2.64)	
Compression ratio		
8.5RES	8.5:1	
12RES	9.0:1	
Main bearings: quantity, type	2, Parent Material	
Rated rpm	3600	3000
Max. engine power at rated rpm, kW (HP)		
CH20, LP vapor	11.5 (15.4)	10 (14.0)
CH20, natural gas	10.0 (13.4)	9.1 (12.2)
CH740, LP vapor	17.6 (23.6)	15.8 (21.2)
CH740, natural gas	15.3 (20.5)	13.8 (18.5)
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	
Ignition system	Electronic, DSAM
Starter motor rated voltage (DC)	12
Battery charger, ampere rating	6
Battery (purchased separately):	
Ground	Negative
Volts (DC)	12
Battery quantity	1
Recommended cold cranking amps (CCA) rating for -18°C (0°F)	525

Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust flow at rated kW, m^3/min. (cfm)		
8.5RES	3.3 (115)	2.7 (96)
12RES	3.8 (135)	3.2 (113)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	760 (1400)	

Lubrication

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

Operation Requirements

	8.5ES		12RES	
Cooling Air	60 Hz	50 Hz	60 Hz	50 Hz
Total inlet air, m^3/min. (cfm)	27.8 (980)	23.2 (820)	28.0 (990)	23.4 (825)
Cooling air, m^3/min. (cfm)	26.9 (950)	22.4 (790)	26.9 (950)	22.4 (790)
Combustion air, m^3/min. (cfm)	0.9 (33.4)	0.8 (28.0)	1.1 (39.2)	0.9 (32.6)

Fuel Requirements

Fuel System	
Fuel types	Natural Gas or LP Vapor
Fuel supply inlet	1/2 NPT
Fuel supply pressure, kPa (in. H_2O):	
Natural gas	1.2–2.7 (5-11)
LP	1.7–2.7 (7-11)

Minimum Gas Pipe Size Recommendation, in. NPT

	8.5RES		12RES	
Pipe Length, m (ft.)	Natural Gas (132,000 Btu/hr.)	LP Vapor (180,000 Btu/hr.)	Natural Gas (193,000 Btu/hr.)	LP Vapor (203,000 Btu/hr.)
8 (25)	3/4	1/2	3/4	3/4
15 (50)	3/4	3/4	1	3/4
30(100)	1	1	1	1
46(150)	1	1	1 1/4	1
61(200)	1	1	1 1/4	1

Fuel Consumption at % rated load

	8.5RES		12RES	
% Load	60 Hz	50 Hz	60 Hz	50 Hz
Natural Gas, m^3/hr. (cfh)				
100%	3.7 (132)	3.3 (118)	5.4 (193)	4.8 (173)
75%	3.2 (113)	2.9 (101)	4.7 (163)	4.2 (148)
50%	2.6 (93)	2.3 (83)	3.5 (124)	3.1 (108)
25%	2.2 (77)	1.9 (69)	2.6 (93)	2.4 (84)
LP Vapor, m^3/hr. (cfh)				
100%	2.0 (72)	1.7 (61)	2.3 (81)	2.1 (74)
75%	1.3 (45)	1.1 (38)	2.1 (75)	1.9 (68)
50%	1.0 (36)	0.9 (31)	1.8 (60)	1.5 (53)
25%	0.8 (29)	0.7 (25)	1.2 (45)	1.1 (40)
LP Vapor, kg/hr. (lb./hr.)				
100%	3.7 (8.4)	3.2 (7.1)	4.3 (9.4)	3.9 (8.6)
75%	2.4 (5.2)	2.1 (4.4)	3.9 (8.7)	3.6 (7.9)
50%	1.9 (4.2)	1.7 (3.6)	3.4 (7.0)	2.8 (6.2)
25%	1.5 (3.4)	1.3 (2.9)	2.2 (5.2)	2.1 (4.7)

LP vapor conversion factors:
8.58 $ft.^3$ = 1 lb.
0.535 m^3 = 1 kg
36.39 $ft.^3$ = 1 gal.

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

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 ±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	±1.5%
One-step load acceptance	100% of Rating
Peak motor starting kVA:	
8.5RES	23
12RES	32

Controller

Advanced Digital Control Features

- Compact controller
- Integrally mounted to the generator set
- LED display:
  - Runtime hours
  - Crank cycle status
  - Diagnostics
  - Application software version
- LED display communicates faults:
  - High battery voltage
  - High engine temperature
  - Low battery voltage
  - Low oil pressure
  - Overcrank safety
  - Overfrequency
  - Overspeed
  - Overvoltage
  - Underfrequency
  - Undervoltage
- Membrane keypad for configuration and adjustment:
  - Password-protected user access to menus
  - Voltage, gain, and speed adjustment
  - System configuration: system voltage, phase, and frequency settings, battery voltage, and generator set model
- Master switch: Run/Off-Reset/Auto
- Remote two-wire start/stop capability
- Superior electronics protection from corrosion and vibration:
  - Potted electronics
  - Sealed connections
- Digital isochronous governor to maintain steady-state speed at all loads
- Digital voltage regulation: ±1.5% RMS no-load to full-load
- Automatic start with programmed cranking cycle

KOHLER CO., Kohler, Wisconsin 53044 USA
Phone 920-565-3381, Fax 920-459-1646
For the nearest sales and service outlet in the
US and Canada, phone 1-800-544-2444
KohlerPowerSystems.com

Standard Features

- Advanced Digital Control
- Battery cables
- 6-amp battery charger
- CARB- and EPA-certified fuel system
- Critical silencer
- Designed for outdoor installation only
- Five-year limited warranty
- Fuel solenoid valve and secondary regulator
- Line circuit breaker
- Multi-fuel system, LP vapor/natural gas, field-convertible
- Oil drain extension with shutoff valve
- Polymer base
- Rodent-proof construction
- Sound-deadening, flame-retardant foam per UL 94, class HF-1
- Sound enclosure, quiet 65 dB(A) operation
- Spark arrestor, USDA Forest Service-approved

Available Accessories

Controller

❑ Relay kit, includes run relay and common fault relay

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])

Transfer Switch

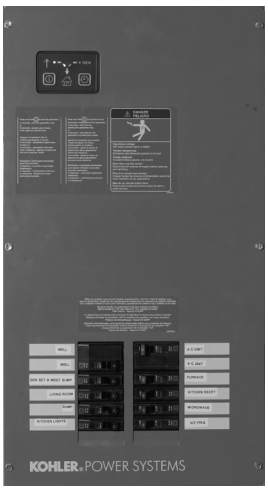
❑ Kohler automatic transfer switch

Miscellaneous Accessories

❑ _____
❑ _____
❑ _____
❑ _____
❑ _____
❑ _____
❑ _____
❑ _____

Available Accessories

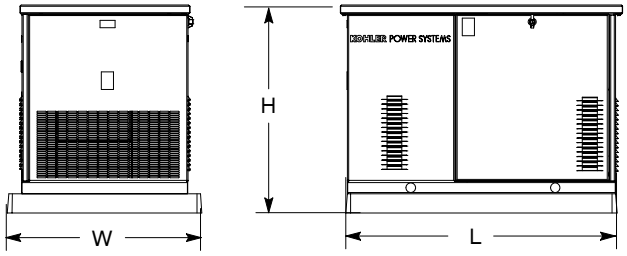
Model RDT Automatic Transfer Switch



- UL listed
- 100, 200, or 400 amps
- 240 VAC/60 Hz or 220 VAC/50 Hz
- Available with or without built-in load center
- Equipped with MPAC™ 500 microprocessor-based controls
- User-friendly controller interface with easy-to-read international symbols
- See specification sheet G11-98 for more information

Dimensions and Weights

Overall Size, L x W x H:	1079 x 774 x 826 mm (42.5 x 30.5 x 32.5 in.)
Weight:	186 kg (410 lb.)
Shipping weight:	195 kg (430 lb.)



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

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