KOHLER.

Model: 150ERESC

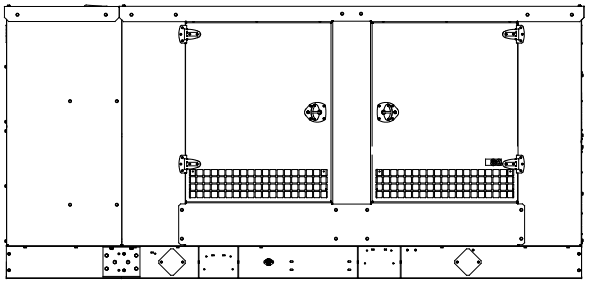
208–480 V **Gas**

ISO 9001 KOHLER. NATIONALLY REGISTERED

EPA-Certified for Stationary Emergency Applications

Ratings Range

		60 Hz
Standby:	**kW**	106–150
	kVA	106–188



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.
- UL 2200 listing is available.
- CSA approval is available.
- The generator set accepts rated load in one step.
- The 60 Hz generator set engine is certified by the Environmental Protection Agency (EPA) to conform to the New Source Performance Standard (NSPS) for stationary spark-ignited emissions.
- A one-year limited warranty covers all systems and components. Two- and five-year extended 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.
- Other features:
  - Kohler® APM402 controller. See Controllers on page 3.
  - The electronic, isochronous governor incorporates an integrated drive-by-wire throttle body actuator delivering precise frequency regulation.
- Quick-ship (QS) models with selected features and a five-year basic warranty are available. See your Kohler distributor for details.

Generator Set Ratings

				Natural Gas 130°C Rise Standby Rating		LPG 130°C Rise Standby Rating	
Alternator	**Voltage**	**Ph**	**Hz**	**kW/kVA**	**Amps**	**kW/kVA**	**Amps**
4R13X	120/208	3	60	137/171	475	137/171	475
	127/220	3	60	143/179	469	137/171	449
	120/240	3	60	137/171	412	137/171	412
	120/240	1	60	107/107	446	107/107	446
	139/240 *	3	60	150/188	454	137/171	412
	220/380 *	3	60	124/155	235	124/155	234
	277/480	3	60	150/188	226	137/171	206
4S12X	120/208	3	60	150/188	520	137/171	475
	127/220	3	60	150/188	492	137/171	449
	120/240	3	60	150/188	451	137/171	412
	120/240	1	60	106/106	442	106/106	442
	139/240 *	3	60	150/188	451	137/171	412
	220/380 *	3	60	140/175	266	137/171	260
	277/480	3	60	150/188	226	137/171	206
4S13X	120/208	3	60	150/188	520	139/174	482
	127/220	3	60	150/188	492	139/174	456
	120/240	3	60	150/188	451	139/174	418
	120/240	1	60	113/113	471	113/113	471
	139/240 *	3	60	150/188	451	139/174	418
	220/380 *	3	60	150/188	285	139/174	264
	277/480	3	60	150/188	226	139/174	209
4T13X	120/240	1	60	144/144	600	134/134	557

* Voltage configuration not available from the factory. Field-adjustable by an authorized service technician.

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:* Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Ratings are in accordance with ISO-8528-1 and ISO-3046-1. For limited running time and continuous ratings, consult the factory. Obtain the technical information bulletin (TIB-101) on ratings guidelines for the complete ratings definitions. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. GENERAL GUIDELINES FOR DERATING: *Altitude:* Derate 1.3% per 100 m (328 ft.) elevation above 200 m (656 ft.) up to a maximum elevation of 3000 m (9842 ft.). *Temperature:* Derate 2.0% per 10°C (18°F) temperature above 25°C (77°F) up to 50°C (122°F). For units having enclosures with enclosed silencers, add 5°C (9°F) to the ambient temperature. For dual fuel engines, use the LPG ratings for both the primary and secondary fuels.

Alternator Specifications

Specifications		Alternator
Manufacturer		Kohler
Type		4-Pole, Rotating-Field
Exciter type		Brushless, Rare-Earth Permanent- Magnet
Leads: quantity, type		
4RX, 4SX		12, Reconnectable
4TX		4, 120/240
Voltage regulator		Solid State, Volts/Hz
Insulation:		NEMA MG1
Material		Class H
Temperature rise		130°C, Standby
Bearing: quantity, type		1, Sealed
Coupling		Flexible Disc
Amortisseur windings		Full
Voltage regulation, no-load to full-load		±0.5%
Unbalanced load capability		100% of Rated Standby Current
One-step load acceptance		100% of Rating
Peak motor starting kVA:		(35% dip for voltages below)
480 V	4R13X (12 lead)	540 (60 Hz)
480 V	4S12X (12 lead)	480 (60 Hz)
480 V	4S13X (12 lead)	570 (60 Hz)
240 V	4T13X (4 lead)	440 (60 Hz)

- 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.
- Vacuum-impregnated windings with fungus-resistant epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.
- Total harmonic distortion (THD) from no load to full load with a linear load is less than 4%.

Application Data

Engine

Engine Specifications	
Manufacturer	PSI
Engine: model, type	Industrial 8.8 L, 4-Cycle, Turbocharged and Charge Cooled
Cylinder arrangement	V-8
Displacement, L (cu. in.)	8.8 (537)
Bore and stroke, mm (in.)	110 x 114 (4.35 x 4.5)
Compression ratio	10.1:1
Piston speed, m/min. (ft./min.)	411 (1350)
Main bearings: quantity, type	5, Bi-Metal Steel and Aluminum
Rated rpm	1800
Max. power at rated rpm, NG, kW (HP)	193 (259)
Max. power at rated rpm, LP, kW (HP)	169 (226)
Cylinder head material	Cast Iron
Piston type and material	Flat Top, Hypereutectic Cast Alum.
Crankshaft material	Forged Steel, Induction Hardened, Tangential Fillet
Valve (exhaust) material	Int.-A193 Exh. Inconel
Governor type	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)	27.5 (971)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	649 (1200)
Maximum allowable back pressure, kPa (in. Hg)	10.2 (3.0)
Exhaust outlet size at engine hookup	See ADV drawing

Engine Electrical

Engine Electrical System	
Ignition system	Individual Coil Near Plug Ignition
Battery charging alternator:	
Ground (negative/positive)	Negative
Volts (DC)	12
Ampere rating	70
Starter motor rated voltage (DC)	12
Battery, recommended cold cranking amps (CCA):	
Qty., rating for -18°C (0°F)	One, 630
Battery voltage (DC)	12

Fuel

Fuel System	
Fuel type	Natural Gas, LPG, or Dual Fuel
Fuel supply line inlet	1.5 NPTF
Natural gas fuel supply pressure, kPa (in. H_2O)	1.74–2.74 (7-11)
LPG vapor withdrawal fuel supply pressure, kPa (in. H_2O)	1.24–2.74 (5-11)
Dual fuel engine, LP vapor withdrawal fuel supply pressure, kPa (in. H_2O)	1.24 (5)

Fuel Composition Limits *	Nat. Gas	LPG
Methane, % by volume	90 min.	1.2 max.
Ethane, % by volume	4.0 max.	10 max
Propane, % by volume	1.0 max.	96 max.
Propene, % by volume	0.1 max.	3 max.
C_4 and higher, % by volume	0.3 max.	3 max.
Sulfur, ppm mass	25 max.	25 max.
Lower heating value, MJ/m^3 (Btu/ft^3), min.	33.2 (890)	78.8 (2116)

* Fuels with other compositions may be acceptable. If your fuel is outside the listed specifications, contact your local distributor for further analysis and advice.

Application Data

Lubrication

Lubricating System	
Type	Full Pressure
Oil pan capacity, L (qt.) §	8.0 (8.5)
Oil pan capacity with filter, L (qt.) §	8.5 (9.0)
Oil filter: quantity, type §	1, Cartridge

§ Kohler recommends the use of Kohler Genuine oil and filters.

Cooling

Radiator System	
Ambient temperature, °C (°F)	45 (113)
Engine jacket water capacity, L (gal.)	13.4 (3.54)
Radiator system capacity, including engine, L (gal.)	25.5 (5.6)
Engine jacket water flow, Lpm (gpm)	125 (33)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	88.2 (5021)
Heat rejected to charge cooling air at rated kW, dry exhaust, kW (Btu/min.)	11.3 (642)
Heat rejected to engine oil at rated kW, dry exhaust, kW (Btu/min.)	1.4 (81)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	711 (28.0)
Fan, kWm (HP)	18.7 (25)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H_2O)	0.125 (0.5)

Operation Requirements

Air Requirements	
Radiator-cooled cooling air, m^3/min. (scfm) †	340 (12000)
Combustion air, m^3/min. (cfm)	8.9 (314)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	24.9 (1476)
Alternator, kW (Btu/min.)	15.7 (893)

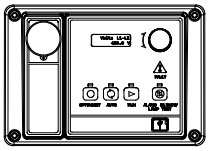
† Air density = 1.20 kg/m^3 (0.075 lbm/ft^3)

Fuel Consumption‡	Standby Rating
Natural Gas, m^3/hr. (cfh) at % load	
100%	55.7 (1965)
75%	43.3 (1529)
50%	31.2 (1102)
25%	19.5 (688)
0%	8.1 (286)
LPG, m^3/hr. (cfh) at % load	
100%	20.2 (713)
75%	15.5 (547)
50%	11.3 (399)
25%	7.2 (254)
0%	4.6 (164)

‡ Nominal fuel rating: Natural gas, 37 MJ/m^3 (1000 Btu/ft^3)
LPG, 93 MJ/m^3 (2500 Btu/ft^3)

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

Controller



APM402 Controller
Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- Digital display 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
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-161 for additional controller features and accessories.

Sound Enclosure

- Sound level (8 point logarithmic average) at 7 m (23 ft.) with full load: 73 dB(A).
- Sound level compared to competitor ratings with no load: 70 dB(A).*
- Sound attenuating enclosure uses acoustic insulation that meets UL 94 HF1 flammability classification and repels moisture absorption.
- Vertical air inlet and outlet discharge with 90 degree bends to redirect air and reduce noise.
- Internal-mounted critical silencer and flexible exhaust connector.
- Skid-mounted, steel (standard) or aluminum (optional) construction with hinged doors.
- Fade-, scratch-, and corrosion-resistant Kohler® Cashmere Power Armor™ textured e-coat paint.
- Lockable, flush-mounted door latches.
- Certified to withstand 241 kph (150 mph) wind load rating (aluminum enclosures only).

* Lowest of 8 points measured around the generator. Sound levels at other points around generator may be higher depending on installation parameters.

KOHLER CO., Kohler, Wisconsin 53044 USA
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For the nearest sales and service outlet in the US and Canada, phone 1-800-544-2444
KOHLERPower.com

Additional Standard Features

- Alternator Protection
- Battery Rack and Cables
- Electronic, Isochronous Governor
- Gas Fuel System (includes fuel mixer, electronic secondary gas regulator, gas solenoid valve, and flexible fuel line between the engine and the skid-mounted fuel system components)
- Integral Vibration Isolation
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature
- Steel Sound Enclosure
- Three-Way Exhaust Catalyst

Available Options

Approvals and Listings

❑ CSA Approval
❑ UL 2200 Listing

Enclosure

❑ Aluminum Sound Enclosure

Fuel System

❑ Dual Fuel NG/LPG (automatic changeover)
❑ Flexible Fuel Line
(required when the generator set skid is spring mounted)
❑ Gas Filter
❑ LP Liquid Withdrawal (vaporizer)
❑ Second Gas Solenoid Valve

Controller

❑ Common Fault Relay
❑ Communication Products and PC Software
❑ Two Input/Five Output Module
❑ Remote Annunciator Panel
❑ Remote Emergency Stop
❑ Run Relay

Cooling System

❑ Block Heater, 1800 W, 110–120 V
❑ Block Heater, 2000 W, 190–240 V
Required for ambient temperatures below 10°C (50°F)
❑ Block Heater, 2000 W, 120 V
(Only available with LP liquid withdrawal)

Electrical System

❑ Alternator Strip Heater
❑ Battery
❑ Battery Charger, Equalize/Float Type
❑ Battery Heater
❑ Line Circuit Breaker (NEMA1 enclosure)
❑ Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)

Miscellaneous

❑ Air Cleaner Restrictor Indicator
❑ Crankcase Ventilation (CCV) Heater
[recommended for ambient temperatures below 0°C (32°F)]
❑ Engine Fluids Added
❑ Rated Power Factor Testing
❑ Rodent Guards

Literature

❑ General Maintenance
❑ Overhaul
❑ Production

Warranty

❑ 2-Year Basic Limited Warranty
❑ 5-Year Basic Limited Warranty
❑ 5-Year Comprehensive Limited Warranty

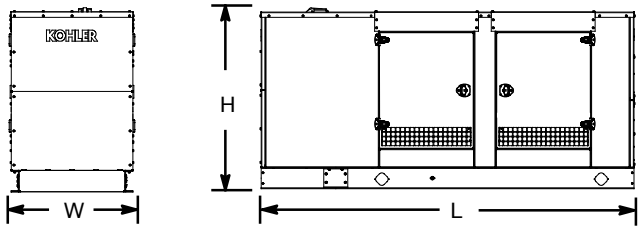
Other Options

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

Dimensions and Weights

Overall Size, L x W x H, mm (in.) :	3526 x 1153 x 1696 (139 x 45.4 x 66.8)
Weight, wet, kg (lb.):	
With steel sound enclosure	1897 (4183)
With aluminum sound enclosure	1730 (3813)

Weight includes generator set with the 4S alternator, engine fluids, sound enclosure, and silencer.



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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