

Model: **40ERES**

KOHLER POWER SYSTEMS

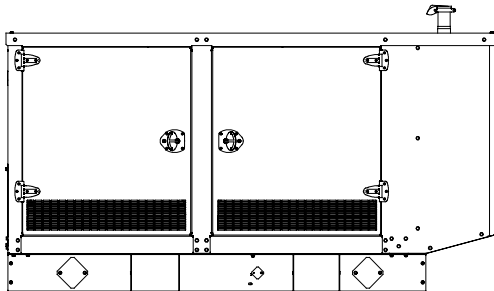
190-480 V

Gas

9001
KOHLER
 POWER SYSTEMS
 NATIONALLY REGISTERED

Ratings Range

Standby:	kW	60 Hz	50 Hz
	kVA	33-40 33-50	24-34 26-40



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. (60 Hz only)
- 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™ II excitation system delivers excellent voltage response and short-circuit capability using a permanent magnet (PM)-excited alternator.
 - The brushless, rotating-field alternator has broadrange reconnectability.
- Other features:
 - Controllers are available for all applications. See controller features inside.
 - 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

Alternator	Voltage	Ph	Hz	Natural Gas 130°C Rise Standby Rating		LP Gas 130°C Rise Standby Rating	
				kW/kVA	Amps	kW/kVA	Amps
4P5	120/208	3	60	39/49	135	39/49	135
	127/220	3	60	39/49	128	40/50	131
	120/240	3	60	39/49	117	39/49	117
	120/240	1	60	33/33	138	33/33	138
	139/240	3	60	39/49	117	40/50	120
	220/380	3	60	35/44	66	35/44	66
	277/480	3	60	39/49	58	40/50	60
	110/190	3	50	31/39	119	32/40	122
	115/200	3	50	28/35	101	28/35	101
	120/208	3	50	24/30	83	24/30	83
4Q5	110/220	1	50	26/26	118	26/26	118
	110/220	3	50	31/39	102	32/40	105
	220/380	3	50	31/39	59	32/40	61
	230/400	3	50	28/35	51	28/35	51
	240/416	3	50	24/30	42	24/30	42
4Q7	120/240	1	60	38/38	158	38/38	158
	110/220	1	50	30/30	136	32/32	145
4Q7	120/240	1	60	40/40	167	40/40	167
	110/220	1	50	32/32	145	34/34	155

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-3046/1, BS 5514, AS 2789, and DIN 6271. For limited running time and base load 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.). *Temperature:* Derate 3.0% per 10°C (18°F) temperature above 25°C (77°F). For dual fuel engines, use the natural gas ratings for both the primary and secondary fuels.

Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Permanent-Magnet
Leads: quantity, type	
4P5	12, Reconnectable
4Q5, 4Q7	4, 110-120/220-240
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	
Decision-Maker 3000 controller	3-Phase Sensing, $\pm 0.5\%$
Decision-Maker 550 controller (with 0.5% drift due to temp variation)	3-Phase Sensing, $\pm 0.25\%$
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, 380 V 4P5 (12 lead)	140 (60 Hz), 98 (50 Hz)
240 V, 220 V 4Q5 (4 lead)	95 (60 Hz), 78 (50 Hz)
240 V, 220V 4Q7 (4 lead)	104 (60 Hz), 91 (50 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.
- Fast-Response™ II brushless alternator with brushless exciter for excellent load response.

Application Data

Engine

Engine Specifications	60 Hz	50 Hz
Manufacturer	General Motors	
Engine: model, type	Industrial Powertrain Vortec 4.3 L, 4-Cycle Natural Aspiration	
Cylinder arrangement	V-6	
Displacement, L (cu. in.)	4.3 (262)	
Bore and stroke, mm (in.)	101.6 x 88.4 (4.00 x 3.48)	
Compression ratio	9.05:1	
Piston speed, m/min. (ft./min.)	318 (1044)	265 (870)
Main bearings: quantity, type	4, Babbitt	
Rated rpm	1800	1500
Max. power at rated rpm, kW (HP)	56 (75)	44.8 (60)
Engine power at standby rating, kW (HP)		
Natural Gas	49.2 (66)	40.3 (54)
LP Gas	53.7 (72)	42.5 (57)
Cylinder head material	Cast Iron	
Piston type and material	High Silicon Aluminum	
Crankshaft material	Nodular Iron	
Valve (exhaust) material	Forged Steel	
Governor type	Electronic	
Frequency regulation, no-load to full-load	Isochronous	
Frequency regulation, steady state	$\pm 0.5\%$	
Frequency	Fixed	
Air cleaner type, all models	Dry	

Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust manifold type	Dry	
Exhaust flow at rated kW, m ³ /min. (cfm)	8.8 (310)	7.4 (260)
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, mm (in.)	76 (3.0) OD	

Engine Electrical

Engine Electrical System	60 Hz	50 Hz
Ignition system	Electronic, Distributor	
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	60 Hz	50 Hz
Fuel type	LP Gas, Natural Gas, or Dual Fuel	
Fuel supply line inlet	1 NPTF	
Natural gas/LPG fuel supply pressure, measured at the generator set fuel inlet downstream of any fuel system equipment accessories, kPa (in. H ₂ O)	1.74-2.74 (7-11)	

Fuel Composition Limits *	Nat. Gas	LP Gas
Methane, % by volume	90 min.	—
Ethane, % by volume	4.0 max.	—
Propane, % by volume	1.0 max.	85 min.
Propene, % by volume	0.1 max.	5.0 max.
C ₄ and higher, % by volume	0.3 max.	2.5 max.
Sulfur, ppm mass	25 max.	
Lower heating value, kJ/m ³ (Btu/ft ³), min.	26.6 (890)	67.5 (2260)

* 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	60 Hz	50Hz
Type	Full Pressure	
Oil pan capacity, L (qt.)	4.3 (4.5)	
Oil pan capacity with filter, L (qt.)	5.7 (6.0)	
Oil filter: quantity, type	1, Cartridge	

Cooling

Radiator System	60 Hz	50 Hz
Ambient temperature, °C (°F)	45 (113)	
Engine jacket water capacity, L (gal.)	6.8 (1.8)	
Radiator system capacity, including engine, L (gal.)	19.7 (5.2)	
Engine jacket water flow, Lpm (gpm)	106.0 (28)	87.1 (23)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	39.2 (2230)	34.6 (1970)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	533 (21)	
Fan, kWm (HP)	3.0 (4.0)	1.7 (2.3)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)	

Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m ³ /min. (scfm)†	142 (5000)	113 (4000)
Combustion air, m ³ /min. (cfm)	2.61 (92)	2.20 (78)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	16.0 (910)	15.4 (860)
Alternator, kW (Btu/min.)	6.3 (360)	6.2 (350)

† Air density = 1.20 kg/m³ (0.075 lbm/ft³)

Fuel Consumption‡	Standby Rating	
Natural Gas, m ³ /hr. (cfh) at % load	60 Hz	50 Hz
100%	16.5 (584)	13.5 (477)
75%	13.8 (486)	10.4 (367)
50%	10.2 (360)	8.0 (281)
25%	7.7 (272)	5.8 (206)
LP Gas, m ³ /hr. (cfh) at % load	60 Hz	50 Hz
100%	6.9 (242)	5.4 (190)
75%	5.4 (191)	4.2 (148)
50%	4.0 (141)	3.1 (111)
25%	2.9 (101)	2.3 (81)

‡ Fuel consumption is based on 1015 Btu/standard cu. ft. natural gas.

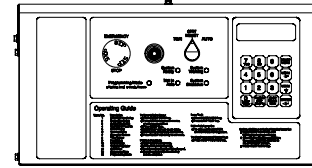
LP vapor conversion factors:

8.58 ft.³ = 1 lb.

0.535 m³ = 1 kg.

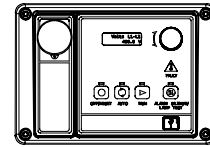
36.39 ft.³ = 1 gal.

Controllers



Decision-Maker® 550 Controller

Audiovisual annunciation with NFPA 110 Level 1 capability. Programmable microprocessor logic and digital display features. Alternator safeguard circuit protection. 12- or 24-volt engine electrical system capability. Remote start, remote annunciation, and remote communication options. Refer to G6-46 for additional controller features and accessories.



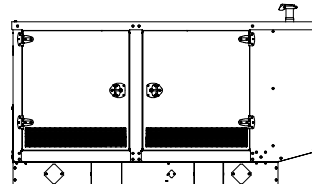
Decision-Maker® 3000 Controller

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
- Scrolling display shows critical data at a glance
- Integrated hybrid voltage regulator with ±0.5% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-100 for additional controller features and accessories.

Sound Enclosure



- Sound level at 7 m (23 ft.) with full load: 69 dB(A)
- Sound attenuated enclosure that uses up to 25 mm (1 in.) of acoustic insulation, acoustic-lined air inlet hoods, and acoustic-lined air discharge hood.
- Acoustic insulation that meets UL 94 HF1 flammability classification and repels moisture absorption.
- 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® cream beige powder-baked finish.
- Lockable, flush-mounted door latches.
- Vertical air inlet and outlet hoods with 90 degree angles to redirect air and reduce noise.
- High wind bracing, 241 kph (150 mph).

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
- Oil Drain Extension
- Operation and Installation Literature
- Steel Sound Enclosure

Available Options

Approvals and Listings

- ☐ CSA Approval
- ☐ UL 2200 Listing (60 Hz only)

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
- ☐ Additional Gas Solenoid Valve

Controller

- ☐ Common Fault Relay
- ☐ Communication Products and PC Software (550 controller only)
- ☐ Customer Connection (550 controller only)
- ☐ Dry Contact (isolated alarm) (550 controller only)
- ☐ Input/Output Module (3000 controller only)
- ☐ Remote Annunciator Panel
- ☐ Remote Audiovisual Alarm Panel (550 controller only)
- ☐ Remote Emergency Stop
- ☐ Run Relay

Cooling System

- ☐ Block Heater [recommended for ambient temperatures below 10°C (50°F)]

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
- ☐ Engine Fluids (oil and coolant) Added
- ☐ Rated Power Factor Testing
- ☐ Rodent Guards

Literature

- ☐ General Maintenance
- ☐ Overhaul
- ☐ Production

Warranty

- ☐ 2-Year Basic
- ☐ 5-Year Basic
- ☐ 5-Year Comprehensive

Other Options

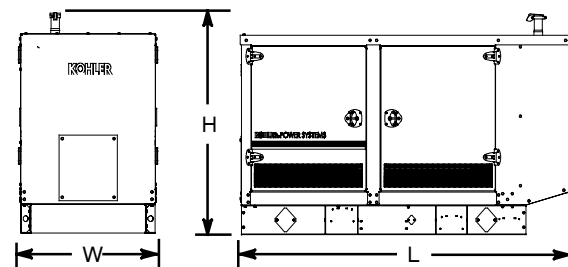
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Dimensions and Weights

Overall Size, L x W x H, mm (in.): 2585 x 1078 x 1509
 (102 x 42.4 x 59.4)

Weight, wet, kg (lb.):
 With steel sound enclosure 982 (2165)
 With aluminum sound enclosure 890 (1962)

Weight includes generator set with engine fluids and largest alternator option, 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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