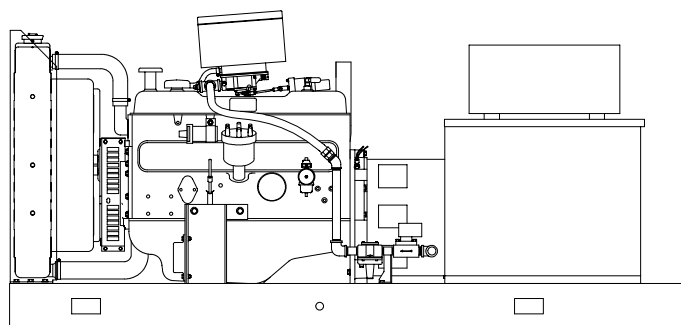


# Model: 30RZ

## KOHLER POWER SYSTEMS

### Gas/Gasoline



## Standard Features

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and components are prototype-tested, factory-built, and production-tested.
- The generator set provides one-step load acceptance.
- A one-year limited warranty covers all systems and components. Two-, five-, and ten-year extended warranties are available.
- Generator features:
  - Kohler's unique Fast-Response™ excitation system delivers the fastest voltage response in the industry.
  - The brushless, rotating-field generator has broadrange reconnectability.
  - Kohler's permanent magnet-excited generator (PMG) provides superior short-circuit capability.
- Other features:
  - Controllers are available for all applications. See controller features inside.
  - Low coolant level shutdown prevents overheating.
  - Integral vibration isolation eliminates the need for under-unit vibration spring isolators.
  - An electronic, isochronous governor delivers precise frequency regulation.

## Generator Ratings

| Model Series | Voltage Code | Voltage | Standby Amps Gasoline | Phase | Hz | Generator Model | Standby Ratings, kW/kVA |        |          | Prime Power, kW/kVA |        |          |
|--------------|--------------|---------|-----------------------|-------|----|-----------------|-------------------------|--------|----------|---------------------|--------|----------|
|              |              |         |                       |       |    |                 | Nat. Gas                | LP Gas | Gasoline | Nat. Gas            | LP Gas | Gasoline |
| 30RZ         | 01           | 120/240 | 90                    | 3     | 60 | 4P5             | 30/38                   | 30/38  | 30/38    | 27/34               | 27/34  | 27/34    |
| 30RZ         | 51           | 139/240 | 90                    | 3     | 60 | 4P5             | 30/38                   | 30/38  | 30/38    | 27/34               | 27/34  | 27/34    |
| 30RZ         | 51           | 127/220 | 98                    | 3     | 60 | 4P5             | 30/38                   | 30/38  | 30/38    | 27/34               | 27/34  | 27/34    |
| 30RZ         | 61           | 120/240 | 125                   | 1     | 60 | 4P5             | 30/30                   | 30/30  | 30/30    | 27/27               | 27/27  | 27/27    |
| 30RZ         | 71           | 277/480 | 45                    | 3     | 60 | 4P5             | 30/38                   | 30/38  | 30/38    | 27/34               | 27/34  | 27/34    |
| 30RZ         | 71           | 220/380 | 57                    | 3     | 60 | 4P5             | 30/38                   | 30/38  | 30/38    | 27/34               | 27/34  | 27/34    |
| 30RZ         | 81           | 120/208 | 104                   | 3     | 60 | 4P5             | 30/38                   | 30/38  | 30/38    | 27/34               | 27/34  | 27/34    |
| 30RZ         | 91           | 347/600 | 36                    | 3     | 60 | 4P5             | 30/38                   | 30/38  | 30/38    | 27/34               | 27/34  | 27/34    |
| 30RFZ        | 01           | 110/220 | 89                    | 3     | 50 | 4P5             | 27/34                   | 27/34  | 27/34    | 24/30               | 24/30  | 24/30    |
| 30RFZ        | 51           | 110/190 | 103                   | 3     | 50 | 4P5             | 27/34                   | 27/34  | 27/34    | 24/30               | 24/30  | 24/30    |
| 30RFZ        | 61           | 110/220 | 118                   | 1     | 50 | 4P5             | 26/26                   | 26/26  | 26/26    | 24/24               | 24/24  | 24/24    |
| 30RFZ        | 71           | 220/380 | 51                    | 3     | 50 | 4P5             | 27/34                   | 27/34  | 27/34    | 24/30               | 24/30  | 24/30    |
| 30RFZ        | 71           | 230/400 | 47                    | 3     | 50 | 4P5             | 26/33                   | 26/33  | 26/33    | 24/30               | 24/30  | 24/30    |
| 30RFZ        | 71           | 240/416 | 45                    | 3     | 50 | 4P5             | 26/33                   | 26/33  | 26/33    | 23/29               | 23/29  | 23/29    |
| 30RFZ        | 81           | 120/208 | 90                    | 3     | 50 | 4P5             | 26/33                   | 26/33  | 26/33    | 23/29               | 23/29  | 23/29    |

RATINGS: Standby ratings are continuous for the duration of any power outage. No overload capacity is specified at this rating. Prime ratings are continuous per BS 5514, DIN 6271, ISO-3046, and IEC 34-1 with 10% overload capacity one hour in twelve hours. All single-phase units are rated at 1.0 power factor. All three-phase units are rated at 0.8 power factor. Contact the factory for ratings of city water-cooled and remote radiator models. Larger alternators may be used to meet special application requirements. 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. GENERAL GUIDELINES FOR DERATION: ALTITUDE: Derate 4.0% per 1000 ft. (305 m) elevation above 500 ft. (152 m). TEMPERATURE: Derate 1.0% per 10°F (5.5°C) temperature increase above 85°F (29°C).

# Alternator Specifications

| Specifications                           | Fast-Response™ Generator                    |
|--|---|
| Manufacturer                             | Kohler                                      |
| Type                                     | 4-Pole, Rotating Field                      |
| Exciter type                             | Brushless, Permanent Magnet                 |
| Leads: quantity, type                    | 12, Reconnectable                           |
| Voltage regulator                        | Solid State, Volts/Hz                       |
| Insulation:                              | NEMA MG1-1.66                               |
| 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 | ±2%   |
| Unbalanced load capability               | 100% of Rated Standby Power                 |
| One-step load acceptance                 | 100% of Rating                              |
| Peak motor starting kVA:                 | (35% dip for 480 V, 60 Hz and 380 V, 50 Hz) |
| 4P5                                      | 140 (60 Hz), 95 (50 Hz)                     |
| 4P7B                                     | 175 (60Hz), 135 (50Hz)                      |

- Complies with NEMA, IEEE, and ANSI standards for temperature rise.
- Sustains short-circuit current of up to 300% of rated current for up to 10 seconds.
- Sustains short-circuit current enabling downstream circuit breakers to trip without collapsing the generator field.
- Self-ventilation, 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.
- Solid-state, volts-per-hertz voltage regulator with ±2% no-load to full-load regulation.
- Fast-Response™ brushless alternator with brushless exciter for excellent load response.

## Application Data

### Engine

| Engine Specifications                      | 60 Hz                                | 50 Hz      |
|--|--------------------------------------|------------|
| Manufacturer                               | Ford                                 |            |
| Engine: model, type                        | CSG-649, 4-Cycle, Natural Aspiration |            |
| Cylinder arrangement                       | 6 In-line                            |            |
| Displacement, cu. in. (L)                  | 300 (4.951)                          |            |
| Bore and stroke, in. (mm)                  | 4.00 (102.0) x 3.98 (101.0)          |            |
| Compression ratio                          | 8.0:1                                |            |
| Piston speed, ft./min. (m/sec.)            | 1194 (6.06)                          | 995 (5.05) |
| Main bearings: quantity, type              | 7, Copper-Lead Alloy                 |            |
| Rated rpm                                  | 1800                                 | 1500       |
| Max. power at rated rpm, HP (kW)           | 82 (61)                              | 66 (49)    |
| Engine power at standby rating, HP (kW)    | 50 (37)                              | 45 (34)    |
| Cylinder head material                     | Iron Alloy                           |            |
| Piston type and material                   | Autothermic Aluminum Alloy           |            |
| Crankshaft material                        | Nodular Cast Iron                    |            |
| Valves material                            | Forged Steel                         |            |
| Governor: type, make/model                 | Electronic, Barber Colman            |            |
| Frequency regulation, no load to full load | Isochronous                          |            |
| Frequency regulation, steady state         | ±0.5%                                |            |
| Air cleaner type, all models               | Dry                                  |            |

### Exhaust

| Exhaust System  | 60 Hz      | 50 Hz     |
|---|------------|-----------|
| Exhaust flow at rated kW, cfm (m³/min.)               | 280 (7.9)  | 240 (6.8) |
| Exhaust temperature at rated kW, dry exhaust, °F (°C) | 1200 (649) |           |
| Maximum allowable back pressure, in. Hg (kPa)         | 2.0 (6.8)  |           |
| Exhaust outlet size at hookup, in. (mm)               | 2.0 (51.0) |           |

### Engine Electrical

| Engine Electrical System  | 60 Hz                   | 50 Hz |
|---|-------------------------|-------|
| Ignition system   | Electronic, Breakerless |       |
| Battery charging alternator:  |                         |       |
| Ground (negative/positive)  | Negative                |       |
| Volts (DC)  | 12                      |       |
| Ampere rating   | 37                      |       |
| Starter motor rated voltage (DC)                                    | 12                      |       |
| Recommended battery cold cranking amps (CCA) rating for 0°F (-18°C) | 630                     |       |
| Batteries, quantity   | 1                       |       |
| Battery voltage (DC)  | 12                      |       |
| Rolling current at 32°F (0°C)                                       | —                       |       |

### Fuel

| Fuel System   | 60 Hz                       | 50 Hz |
|---|-----------------------------|-------|
| Fuel type   | Gasoline                    |       |
| Fuel supply line inlet                                  | 1/8-27 NPT                  |       |
| Max. lift, engine-driven fuel pump, ft. (m)             | 3.7 (1.1)                   |       |
| Fuel filter   | —                           |       |
| Fuel type   | LP Gas or Natural Gas Vapor |       |
| Fuel supply line inlet                                  | 3/4-14 NPT                  |       |
| Natural gas/LPG fuel supply pressure oz./in.² (in. H₂O) | 4-6 (7-11)                  |       |

### Lubrication

| Lubricating System                     | 60 Hz         | 50 Hz |
|--|---------------|-------|
| Type                                   | Full Pressure |       |
| Oil pan capacity, qts. (L)             | 6.0 (5.7)     |       |
| Oil pan capacity with filter, qts. (L) | 7.0 (6.6)     |       |
| Oil filter: quantity, type             | 1, Cartridge  |       |

# Application Data

## Cooling (Standard Radiator)

| Cooling System   | 60 Hz       | 50 Hz     |
|--|-------------|-----------|
| Ambient temperature, °F (°C)   | 105 (40)    |           |
| Engine jacket water capacity, gal. (L)   | 2.7 (10.2)  |           |
| Radiator system capacity, including engine, gal. (L)   | 5.3 (20.1)  |           |
| Engine jacket water flow, gpm (Lpm)  | 26 (98.4)   | 21 (79.5) |
| Heat rejected to cooling water at rated kW, dry exhaust Btu/min.                                   | 2210        | 2060      |
| Water pump type  | Centrifugal |           |
| Fan diameter, including blades, in. (mm)   | 19.0 (483)  |           |
| Fan, HP (kW)   | 3.0 (2.2)   | 1.8 (1.3) |
| Max. restriction of cooling air, intake and discharge side of radiator, in. H <sub>2</sub> O (kPa) | 0.5 (0.125) |           |

## Cooling (Optional Systems)

| High Ambient Radiator System   | 60 Hz       | 50 Hz     |
|--|-------------|-----------|
| Ambient temperature, °F (°C)   | 122 (50)    |           |
| Engine jacket water capacity, gal. (L)   | 2.7 (10.2)  |           |
| Radiator system capacity, including engine, gal. (L)   | 5.8 (22.0)  |           |
| Engine jacket water flow, gpm (Lpm)  | 26 (98.4)   | 21 (79.5) |
| Heat rejected to cooling water at rated kW, dry exhaust Btu/min.                                   | 1830        | 1520      |
| Water pump type  | Centrifugal |           |
| Fan diameter, including blades, in. (mm)   | 19.0 (483)  |           |
| Fan, HP (kW)   | 3.0 (2.2)   | 1.8 (1.3) |
| Max. restriction of cooling air, intake and discharge side of radiator, in. H <sub>2</sub> O (kPa) | 0.5 (0.125) |           |

| Remote Radiator System*   | 60 Hz             | 50 Hz |
|---|-------------------|-------|
| Exhaust manifold type   | Dry               |       |
| Connection sizes:   |                   |       |
| Water inlet, in. (mm) . . . . .   | 2.00 (51) ID Hose |       |
| Water outlet, in. (mm) . . . . .  | 1.75 (44) ID Hose |       |
| Static head allowable<br>above engine, ft. (m)  | 17.0 (4.32)       |       |
| *Contact your local distributor for cooling system options and specifications based on your specific application. |                   |       |

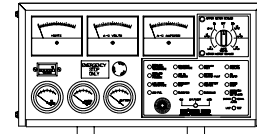
| City Water Cooling (CWC) System                  | 60 Hz          | 50 Hz |
|--|----------------|-------|
| Exhaust manifold type                            | Dry            |       |
| System capacity, gal. (L)                        | 4.0 (15.0)     |       |
| City water consumption, gpm (Lpm) at 50°F (10°C) | 2.5 (10.0)     |       |
| Connection sizes:                                |                |       |
| Water inlet, in. (mm) . . . . .                  | 0.5 (12.7) NPT |       |
| Water outlet, in. (mm) . . . . .                 | 1.0 (25) NPT   |       |

## Operation Requirements

| Air Requirements  | 60 Hz      | 50 Hz      |
|---|------------|------------|
| Radiator-cooled cooling air, cfm (m <sup>3</sup> /min.)   | 5500 (156) | 4600 (130) |
| Cooling air required for gen. set when equipped with CWC or remote radiator, based on 25°F (14°C) rise and ambient temp. of 85°F (29°C), cfm (m <sup>3</sup> /min.) | 2500 (71)  | 2200 (62)  |
| Combustion air, cfm (m <sup>3</sup> /min.)  | 89 (2.5)   | 79 (2.2)   |
| Heat rejected to ambient air:   |            |            |
| Engine Btu/min. (kW) . . . . .  | 810 (14.2) | 710 (12.5) |
| Generator Btu/min. (kW) . . . . .   | 270 (4.7)  | 220 (3.9)  |

| Fuel Consumption                                      | 60 Hz      | 50 Hz      |
|---|------------|------------|
| <b>Natural Gas, cfh (m<sup>3</sup>/hr.) at % load</b> |            |            |
| 100%  | 480 (13.6) | 420 (11.9) |
| 75%   | 390 (11.0) | 350 (9.9)  |
| 50%   | 310 (8.8)  | 270 (7.6)  |
| 25%   | 240 (6.8)  | 200 (5.7)  |
| <b>LP Gas, cfh (m<sup>3</sup>/hr.) at % load</b>      |            |            |
| 100%  | 210 (5.9)  | 190 (5.4)  |
| 75%   | 180 (5.1)  | 150 (4.2)  |
| 50%   | 140 (4.0)  | 120 (3.4)  |
| 25%   | 100 (2.8)  | 90 (2.6)   |
| <b>Gasoline, gph (Lph) at % load</b>                  |            |            |
| 100%  | 3.9 (14.8) | 3.3 (12.5) |
| 75%   | 3.1 (11.7) | 2.7 (10.2) |
| 50%   | 2.6 (9.8)  | 2.1 (7.9)  |
| 25%   | 2.0 (7.6)  | 1.6 (6.1)  |

## Controllers



### Standard Controller

#### Decision-Maker™ 3+, 16-Light Controller

Audio/visual annunciation with NFPA-110, Level 1 capability  
Microprocessor logic with AC meters and engine gauges  
Compatible with 12-volt and 24-volt engine electrical systems  
Remote start, prime power, and remote annunciation capability

### Optional Controllers

#### Decision-Maker™ 340 Controller

Audio/visual annunciation with NFPA-110, Level 1 capability  
Programmable microprocessor logic with digital display  
Compatible with 12-volt and 24-volt engine electrical systems  
Remote start, prime power, remote annunciation, and remote communication capability

#### Decision-Maker™ 3+, 7-Light Controller

Audio/visual annunciation with NFPA-110, Level 2 capability  
Microprocessor logic with AC meters and engine gauges  
Compatible with 12-volt and 24-volt engine electrical systems  
Remote start, prime power, and remote annunciation capability

#### Decision-Maker™ 1 Controller

Provides remote or automatic start with NFPA compliance  
Uses single-light annunciation with basic control functions  
Relay logic with three models—standard, standard with engine gauges, and expanded with AC meters and engine gauges  
Compatible with 12-volt engine electrical systems only

NOTE: See the respective controller spec sheet for additional controller features and accessories.

## Accessories

**Enclosed Unit**

- ☐ Exhaust Silencer, Critical or Industrial
- ☐ Silencer Mounting Kit for Housing
- ☐ Tail Pipe and Rain Cap Kit
- ☐ Weather Housing

## Open Unit

- ☐ Exhaust Silencer, Critical or Industrial
- ☐ Flexible Exhaust Connector. Stainless Steel

## Cooling System

- ☐ Block Heater
- ☐ City Water Cooling
- ☐ Radiator Duct Flange
- ☐ Remote Radiator Cooling

## Fuel System

- ☐ Automatic Changeover (natural gas to LP gas)
- ☐ Auxiliary Fuel Pump
- ☐ Flexible Fuel Lines (LP gas)
- ☐ Gas Strainer
- ☐ LP Gas Liquid Withdrawal
- ☐ Manual Changeover Combination (LP or natural gas to gasoline)
- ☐ Manual Valve and Gas Solenoid Bypass
- ☐ Secondary Gas Solenoid Valve

## Electrical System

- ☐ Battery
- ☐ Battery Charger, Equalize/Float Type
- ☐ Battery Heater
- ☐ Battery Rack and Cables

### Engine and Generator

- ☐ Bus Bar Kits
- ☐ CSA Certification
- ☐ Generator Strip Heater
- ☐ Line Circuit Breaker
- ☐ Line Circuit Breaker with Shunt Trip
- ☐ NFPA 110 Literature
- ☐ Oil Drain Extension with Valve Kit
- ☐ Optional Generators
- ☐ Rated Power Factor Testing
- ☐ Rodent Guards
- ☐ Safeguard Breaker
- ☐ Skid End Caps
- ☐ Voltage Regulation, 1%
- ☐ Voltage Regulator Sensing, Three-Phase

## Maintenance

- ☐ General Maintenance Literature Kit
- ☐ Maintenance Kit (includes standard air, oil, and fuel filters)
- ☐ Overhaul Literature Kit

### Controller (Standard Controller)

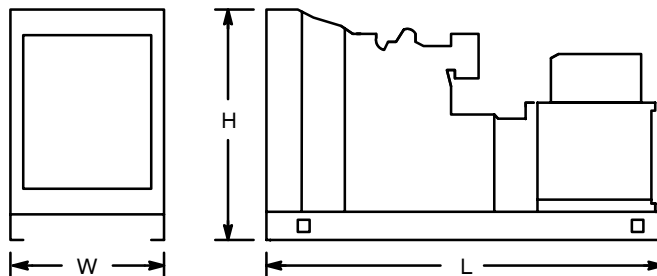
- ☐ Common Failure Relay Kit
- ☐ Customer Connection Kit
- ☐ Decision Monitor™ Remote Annunciator Panel
- ☐ Dry Contact Kit (isolated alarm)
- ☐ Extension Wiring Harness for Remote Mounting of Controller
- ☐ FASTCHECK® Diagnostic Fault Detector
- ☐ Prealarm Sender Kit
- ☐ Remote Audio/Visual Alarm Panel
- ☐ Remote Emergency Stop Kit
- ☐ Run Relay Kit

### Miscellaneous Accessories

- [illegible]

## WEIGHTS AND DIMENSIONS

|  |   |
|--|---|
| Overall Size, L x W x H, in. (mm):     | 88.25 x 29.0 x 41.69<br>(2242 x 737 x 1059) |
| Weight (Radiator Model), wet lb. (kg): | 1340 (608)                                  |



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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