KOHLER® Power Systems

Model: **100REOZJF**

208–600 V Diesel

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**Tier 3 EPA-Certified for Stationary Emergency Applications**

**Ratings Range**

<table>
<thead>
<tr>
<th></th>
<th>60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standby:</strong> kW</td>
<td>77–102</td>
</tr>
<tr>
<td>kVA</td>
<td>77–128</td>
</tr>
<tr>
<td><strong>Prime:</strong> kW</td>
<td>71–92</td>
</tr>
<tr>
<td>kVA</td>
<td>71–115</td>
</tr>
</tbody>
</table>

**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.
- The 60 Hz generator set offers a UL 2200 listing.
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- 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 designed controllers for guaranteed system integration and remote communication. See Controllers on page 3.
  - The low coolant level shutdown prevents overheating (standard on radiator models only).
  - Integral vibration isolation eliminates the need for under-unit vibration spring isolators.
  - Multiple circuit breaker configurations.

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**Generator Set Ratings**

<table>
<thead>
<tr>
<th>Alternator</th>
<th>Voltage</th>
<th>Ph</th>
<th>Hz</th>
<th>130°C Rise Standby Rating kW/kVA</th>
<th>130°C Rise Prime Rating kW/kVA</th>
<th>105°C Rise Standby Rating kW/kVA</th>
<th>105°C Rise Prime Rating kW/kVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>4R9X</td>
<td>120/208</td>
<td>3</td>
<td>60</td>
<td>100/125 347 90/113 312</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>127/220</td>
<td>3</td>
<td>60</td>
<td>100/125 328 90/113 295</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>120/240</td>
<td>3</td>
<td>60</td>
<td>100/125 301 90/113 271</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>120/240</td>
<td>1</td>
<td>60</td>
<td>77/77   321 71/71 296</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>139/240</td>
<td>3</td>
<td>60</td>
<td>100/125 301 90/113 271</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>220/380</td>
<td>3</td>
<td>60</td>
<td>100/125 190 90/113 171</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>277/480</td>
<td>3</td>
<td>60</td>
<td>100/125 150 90/113 135</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>347/600</td>
<td>3</td>
<td>60</td>
<td>100/125 120 90/113 108</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4R12X</td>
<td>120/208</td>
<td>3</td>
<td>60</td>
<td>102/128 354 92/115 319</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>127/220</td>
<td>3</td>
<td>60</td>
<td>102/128 335 92/115 302</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>120/240</td>
<td>3</td>
<td>60</td>
<td>102/128 307 92/115 277</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>120/240</td>
<td>1</td>
<td>60</td>
<td>91/91   379 84/84 350</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>139/240</td>
<td>3</td>
<td>60</td>
<td>102/128 307 92/115 277</td>
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<tr>
<td></td>
<td>220/380</td>
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<td>60</td>
<td>102/128 194 92/115 175</td>
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<td>277/480</td>
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<td>60</td>
<td>102/128 153 92/115 138</td>
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<td>347/600</td>
<td>3</td>
<td>60</td>
<td>102/128 123 92/115 111</td>
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<tr>
<td>4T12X</td>
<td>120/240</td>
<td>1</td>
<td>60</td>
<td>100/100 417 90/90 375</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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:** The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. **Prime Power Ratings:** At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. **Ratings are in accordance with ISO-8528-1 and ISO-3046-1.** For limited running time and continuous ratings, consult the factory. Obtain technical information bulletin (TIB-101) for ratings guidelines, complete ratings definitions, and site condition derates. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.
Alternator Specifications

- 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.

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Alternator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>Kohler</td>
</tr>
<tr>
<td>Type</td>
<td>4-Pole, Rotating-Field</td>
</tr>
<tr>
<td>Exciter type</td>
<td>Brushless, Rare-Earth, Permanent-Magnet</td>
</tr>
<tr>
<td>Leads: quantity, type</td>
<td>4RX 12, Reconnectable</td>
</tr>
<tr>
<td>Voltage regulator</td>
<td>Solid State, Volts/Hz</td>
</tr>
<tr>
<td>Insulation: Material</td>
<td>NEMA MG1</td>
</tr>
<tr>
<td>Temperature rise</td>
<td>130°C, Standby</td>
</tr>
<tr>
<td>Bearing: quantity, type</td>
<td>1, Sealed</td>
</tr>
<tr>
<td>Coupling</td>
<td>Flexible Disc</td>
</tr>
<tr>
<td>Amortisseur windings</td>
<td>Full</td>
</tr>
<tr>
<td>Voltage regulation, no-load to full-load</td>
<td>Controller Dependent</td>
</tr>
<tr>
<td>One-step load acceptance</td>
<td>100% of Rating</td>
</tr>
<tr>
<td>Unbalanced load capability</td>
<td>100% of Rated Standby Current</td>
</tr>
</tbody>
</table>

Application Data

Engine

- Engine Specifications
- Manufacturer: John Deere
- Engine model: 4045HF2851
- Cylinder arrangement: 4 Inline
- Displacement, L (cu. in.): 4.5 (276)
- Bore and stroke, mm (in.): 106 x 127 (4.19 x 5.00)
- Compression ratio: 19:1
- Piston speed, m/min. (ft./min.): 457 (1500)
- Main bearings: quantity, type: 5, Replaceable Insert
- Rated rpm: 1800
- Max. power at rated rpm, kWm (BHP): 118 (158)
- Cylinder head material: Cast Iron
- Crankshaft material: Forged Steel
- Valve material: Intake - Chromium-Silicon Steel, Exhaust - Stainless Steel
- Governor: type, make/model: JDEC Electronic L16 Denso HP3
- Frequency regulation, no-load to full-load: Isochronous
- Frequency regulation, steady state: ±0.25%
- Frequency: Fixed
- Air cleaner type, all models: Dry

Exhaust

- Exhaust System
- Exhaust manifold type: Dry
- Exhaust flow at rated kW, m³/min. (cfm): 22.8 (805)
- Exhaust temperature at rated kW, dry exhaust, °C (°F): 580 (1076)
- Maximum allowable back pressure, kPa (in. Hg): 7.5 (2.2)
- Exhaust outlet size at engine hookup, mm (in.): 98 (3.86)

Fuel

- Fuel System
- Fuel supply line, min. ID, mm (in.): 11.0 (0.44)
- Fuel return line, min. ID, mm (in.): 6.0 (0.25)
- Max. lift, fuel pump: type, m (ft.): Engine-Driven, 1.8 (6.0)
- Max. fuel flow, Lph (gph): 74.6 (19.7)
- Max. return line restriction, kPa (in. Hg): 20 (5.9)
- Fuel prime pump: Manual
- Fuel filter: Primary - 30 Microns, Secondary - 2 Microns @ 98% Efficiency
- Water Separator: Yes
- Recommended fuel: #2 Diesel

Lubrication

- Lubricating System
- Type: Full Pressure
- Oil pan capacity, L (qt.): 14.7 (15.5)
- Oil pan capacity with filter, L (qt.): 15.6 (16.5)
- Oil filter: quantity, type: 1, Cartridge
- Oil cooler: Water-Cooled
Application Data

Cooling

Radiator System
- Ambient temperature, °C (°F) *: 50 (122)
- Engine jacket water capacity, L (gal.): 8.5 (2.25)
- Radiator system capacity, including engine, L (gal.): 20.1 (5.3)
- Engine jacket water flow, Lpm (gpm): 182 (48)
- Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.): 62 (3544)
- Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.): 20 (1127)
- Water pump type: Centrifugal
- Fan diameter, including blades, mm (in.): 600 (23.6)
- Fan, kWm (HP): 6.6 (8.8)
- Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H₂O): 0.125 (0.5)

* Enclosure with enclosed silencer reduces ambient temperature capability by 5°C (9°F).

Operation Requirements

Air Requirements
- Radiator-cooled cooling air, m³/min. (acfm): 142 (5000)
- Combustion air, m³/min. (cfm): 8.2 (288)
- Heat rejected to ambient air:
  - Engine, kW (Btu/min.): 25.0 (1420)
  - Alternator, kW (Btu/min.): 11.6 (660)
- Air density = 1.20 kg/m³ (0.075 lbm/ft³)

Fuel Consumption

<table>
<thead>
<tr>
<th>Diesel, Lph (gph) at % load</th>
<th>Standby Rating</th>
<th>Prime Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>31.0 (8.2)</td>
<td>27.6 (7.3)</td>
</tr>
<tr>
<td>75%</td>
<td>25.0 (6.6)</td>
<td>22.7 (6.0)</td>
</tr>
<tr>
<td>50%</td>
<td>17.8 (4.7)</td>
<td>14.4 (3.8)</td>
</tr>
<tr>
<td>25%</td>
<td>9.5 (2.5)</td>
<td>7.6 (2.0)</td>
</tr>
</tbody>
</table>

Controllers

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
- 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 G6-100 for additional controller features and accessories.

Decision-Maker® 550 Controller
Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities.
- Digital display and keypad provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or modem configuration
- Controller supports Modbus® protocol
- Integrated hybrid voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability
Refer to G6-46 for additional controller features and accessories.

Decision-Maker® 6000 Paralleling Controller
Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities for paralleling multiple generator sets.
- Paralleling capability with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
- Digital display and keypad provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or modem configuration
- Controller supports Modbus® protocol
- Integrated hybrid voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability
Refer to G6-107 for additional controller features and accessories.
Standard Features
- Alternator Protection
- Battery Rack and Cables
- Customer Connection
  (standard with Decision-Maker® 6000 controller only)
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature

Available Options

Approvals and Listings
- California OSHPD Approval
- CSA Approval
- IBC Seismic Certification
- UL 2200 Listing

Enclosed Unit
- Sound Enclosure (with enclosed critical silencer)
- Weather Enclosure (with enclosed critical silencer)

Open Unit
- Exhaust Silencer, Critical (kit: PA-354809)
- Flexible Exhaust Connector, Stainless Steel

Fuel System
- Flexible Fuel Lines
- Fuel Pressure Gauge
- Subbase Fuel Tanks

Controller
- Common Failure Relay
- Communication Products and PC Software
- Customer Connection (Decision-Maker® 550 controller only)
- Decision-Maker® Paralleling System (DPS)
  (Decision-Maker® 6000 controller only)
- Dry Contact (isolated alarm)
  (Decision-Maker® 550 and 6000 controllers only)
- Input/Output Module (Decision-Maker® 3000 controller only)
- Remote Emergency Stop Switch
- Remote Serial Annunciator Panel
- Run Relay

Cooling System
- Block Heater, 1500 W, 90–120 V, 1 Ph
  Recommended for ambient temperatures below 0°C (32°F)
- Radiator Duct Flange

Electrical System
- Alternator Strip Heater
- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater
- Line Circuit Breaker (NEMA type 1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA type 1 enclosure)

Paralleling System
- Manual Speed Adjust

Miscellaneous
- Air Cleaner, Heavy Duty
- Air Cleaner Restriction Indicator
- Certified Test Report
- Crankcase Emissions Canister
- Engine Fluids Added
- Rated Power Factor Testing
- Rodent Guards

Literature
- General Maintenance
- NFPA 110
- Overhaul
- Production

Warranty
- 2-Year Basic
- 5-Year Basic
- 5-Year Comprehensive

Other Options

Dimensions and Weights
Overall Size, L x W x H, mm (in.):
Wide Skid: See Enclosure ADV Drawing
Narrow Skid: 2334 x 864 x 1216 (91.89 x 34.02 x 47.90)
Weight (radiator model), wet, kg (lb.): 1234 (2720)

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