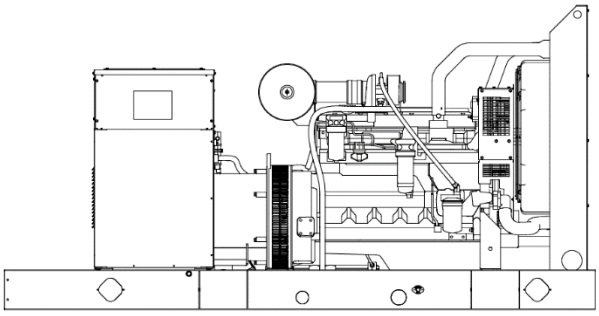
# Industrial Generator Set - 150REOZJF

## 208-600 V Diesel

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

## Ratings Range

| | | 60 Hz |
|---|---|---|
| **Standby:** | **kW** | 106-154 |
| | **kVA** | 106-193 |
| **Prime** | **kW** | 99-140 |
| | **kVA** | 99-175 |



## Standard Features

- Rehlko provides one-source responsibility for the generating system and accessories.
- Approved for use with certified renewable Hydrotreated Vegetable Oil (HVO)/Renewable Diesel (RD) fuels compliant with EN15940/ASTM D975.
- 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 generator set systems and components. Two- and five-year extended limited 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:
  - Rehlko designed controllers for one-source 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.
- Mount up to four circuit breakers to allow circuit protection of selected priority loads.

## Generator Set Ratings

| | | | | 130°C Rise Standby Rating | | 105°C Rise Prime Rating | |
|---|---|---|---|---|---|---|---|
| **Alternator** | **Voltage** | **Ph** | **Hz** | **kW/kVA** | **Amps** | **kW/kVA** | **Amps** |
| 4R13X | 120/208 | 3 | 60 | 137/171 | 475 | 128/160 | 444 |
| | 127/220 | 3 | 60 | 143/179 | 469 | 132/165 | 433 |
| | 120/240 | 3 | 60 | 137/171 | 412 | 128/160 | 385 |
| | 120/240 | 1 | 60 | 107/107 | 446 | 99/99 | 413 |
| | 139/240 | 3 | 60 | 150/188 | 451 | 136/170 | 409 |
| | 220/380 | 3 | 60 | 124/155 | 235 | 116/145 | 220 |
| | 277/480 | 3 | 60 | 150/188 | 226 | 136/170 | 204 |
| 4S12X | 120/208 | 3 | 60 | 154/193 | 534 | 140/175 | 486 |
| | 127/220 | 3 | 60 | 154/193 | 505 | 140/175 | 459 |
| | 120/240 | 3 | 60 | 154/193 | 463 | 140/175 | 421 |
| | 120/240 | 1 | 60 | 106/106 | 442 | 105/105 | 438 |
| | 139/240 | 3 | 60 | 154/193 | 463 | 140/175 | 421 |
| | 220/380 | 3 | 60 | 140/175 | 266 | 131/164 | 249 |
| | 277/480 | 3 | 60 | 154/193 | 232 | 140/175 | 210 |
| | 347/600 | 3 | 60 | 154/193 | 185 | 140/175 | 168 |
| 4S13X | 120/208 | 3 | 60 | 154/193 | 534 | 140/175 | 486 |
| | 127/220 | 3 | 60 | 154/193 | 505 | 140/175 | 459 |
| | 120/240 | 3 | 60 | 154/193 | 463 | 140/175 | 421 |
| | 120/240 | 1 | 60 | 113/113 | 471 | 113/113 | 471 |
| | 139/240 | 3 | 60 | 154/193 | 463 | 140/175 | 421 |
| | 220/380 | 3 | 60 | 154/193 | 292 | 140/175 | 266 |
| | 277/480 | 3 | 60 | 154/193 | 232 | 140/175 | 210 |
| | 347/600 | 3 | 60 | 154/193 | 185 | 140/175 | 168 |
| 4T13X | 120/240 | 1 | 60 | 144/144 | 600 | 133/133 | 554 |

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.




Discovery Energy, LLC
200 Twin Oaks Road, Kohler, WI 53044 USA
For the nearest sales and service outlet in the US and Canada, phone 1-800-544-2444 - powersystems.rehlko.com

# Alternator Specifications

| Specifications | Alternator |
|---|---|
| Type | 4-Pole, Rotating-Field |
| Exciter type | Brushless, Rare-Earth, Permanent-Magnet |
| Leads: quantity, type | |
| 4RX, 4SX | 12, Reconnectable |
| 4TX | 4, 120/240 V |
| 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 | Controller Dependent |
| One-step load acceptance | 100% of Rating |
| Unbalanced load capability | 100% of Rated Standby Current |

- 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.
- Windings are vacuum-impregnated with epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.

| Specifications | | Alternator |
|---|---|---|
| Peak motor starting kVA: | | (35% dip for voltages below) |
| 480V | 4R13X (12 lead) | 540 |
| 480V | 4S12X (12 lead) | 480 |
| 480V | 4S13X (12 lead) | 570 |
| 240V | 4T13X (4 lead) | 440 |

# Application Data

## Engine

| Engine Specifications | |
|---|---|
| Manufacturer | John Deere |
| Engine model | 6068HF285K |
| Engine type | 4-Cycle, Turbocharged, Charge Air-Cooled |
| Cylinder arrangement | 6 Inline |
| Displacement, L (cu. in.) | 6.8 (415) |
| Bore and stroke, mm (in.) | 106 x 127 (4.19 x 5.00) |
| Compression ratio | 17.0:1 |
| Piston speed, m/min. (ft./min.) | 457 (1500) |
| Main bearings: quantity, type | 7, Replaceable Insert |
| Rated rpm | 1800 |
| Max. power at rated rpm, kWm (BHP) | 177 (237) |
| 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, $m^3$/min. (cfm) | 33.9 (1197) |
| Exhaust temperature at rated kW, dry exhaust, °C (°F) | 510 (950) |
| Maximum allowable back pressure, kPa (in. Hg) | 7.5 (2.2) |
| Exhaust outlet size at engine hookup, mm (in.) | 98 (3.86) |

## Engine Electrical

| Engine Electrical System (12/24 Volt*) | |
|---|---|
| Battery charging alternator: | 12 Volt/24 Volt |
| Ground (negative/positive) | Negative |
| Volts (DC) | 12/24 |
| Ampere rating | 65/45 |
| Starter motor rated voltage (DC) | 12/24 |
| Battery, recommended cold cranking amps (CCA): | 12 Volt/24 Volt |
| Quantity, CCA rating each | One, 640/Two, 570 |
| Battery voltage (DC) | 12 |

* 12-volt or 24-volt engine electrical systems are available.

## 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.) | Electronic, 1.8 (6.0) |
| Max. fuel flow, Lph (gph) | 96.9 (25.6) |
| 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/HVO/RD |

## Lubrication

| Lubricating System | |
|---|---|
| Type | Full Pressure |
| Oil pan capacity, L (qt.) § | 27.0 (28.5) |
| Oil pan capacity with filter, L (qt.) § | 27.9 (29.5) |
| Oil filter: quantity, type § | 1, Cartridge |
| Oil cooler | Water-Cooled |

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

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# Application Data

## Cooling

| Radiator System | |
|---|---|
| Ambient temperature, °C (°F)* | 50 (122) |
| Engine jacket water capacity, L (gal.) | 11.3 (3.0) |
| Radiator system capacity, including engine, L (gal.) | 25.7 (6.8) |
| Engine jacket water flow, Lpm (gpm) | 174 (46) |
| Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.) | 76.3 (4340) |
| Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.) | 31.8 (1810) |
| Water pump type | Centrifugal |
| Fan diameter, including blades, mm (in.) | 660 (26) |
| Fan, kWm (HP) | 7.7 (10.3) |
| Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. $H_2O$) | 0.125 (0.5) |

* Enclosure with internal silencer reduces ambient temperature capability by 5°C (9°F).
Snow package enclosure with enclosed silencer reduces ambient temperature capability by 10°C (18°F).

## Operation Requirements

| Air Requirements | |
|---|---|
| Radiator-cooled cooling air, $m^3$/min. (scfm)‡ | 226.5 (8000) |
| Combustion air, $m^3$/min. (cfm) | 13.6 (480) |
| Heat rejected to ambient air: | |
| Engine, kW (Btu/min.) | 35.9 (2040) |
| Alternator, kW (Btu/min.) | 12.3 (700) |

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

**Fuel Consumption****

| Diesel, Lph (gph) at % load | Standby Rating |
|---|---|
| 100% | 44.3 (11.7) |
| 75% | 35.1 (9.3) |
| 50% | 26.3 (6.9) |
| 25% | 16.2 (4.3) |
| **Diesel, Lph (gph) at % load** | **Prime Rating** |
| 100% | 40.6 (10.7) |
| 75% | 32.3 (8.5) |
| 50% | 24.0 (6.3) |
| 25% | 14.4 (3.8) |

** Volumetric Fuel consumption is up to 4% higher when using HVO/RD than #2 ULSD.

## Controllers


**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.


**APM603 Controller**
Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- 7-inch graphic display with touch screen and menu control provides easy local data access
- Measurements are selectable in metric or English units
- Paralleling capability to control up to 8 generators on an isolated bus with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
  Note: Parallel with other APM603 controllers only
- Generator management to turn paralleled generators off and on as required by load demand
- Load management to connect and disconnect loads as required
- Controller supports Modbus® RTU, Modbus® TCP, SNMP and BACnet®
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- UL-listed overcurrent protective device
- NFPA 110 Level 1 capability

Refer to G6-162 for additional controller features and accessories.




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# Industrial Generator Set - 150REOZJF

## 208-600 V Diesel

## Standard Features

- Alternator Protection
- Battery Rack and Cables
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature

## Available Options

**Circuit Breakers**

**Type**

- ❑ Magnetic Trip
- ❑ Thermal Magnetic Trip
- ❑ Electronic Trip (LI)
- ❑ Electronic Trip with Short Time (LSI)
- ❑ Electronic Trip with Ground Fault (LSIG)

**Rating**

- ❑ 80%
- ❑ 100%

**Operation**

- ❑ Manual
- ❑ Electrically Operated (for paralleling)

**Circuit Breaker Mounting**

- ❑ Generator Mounted
- ❑ Remote Mounted
- ❑ Bus Bar (for remote mounted breakers)

**Enclosures for Remote Mounted Circuit Breakers**

- ❑ NEMA 1
- ❑ NEMA 3R

**Approvals and Listings**

- ❑ CSA Certified
- ❑ California OSHPD Pre-Approval
- ❑ Hurricane Rated Enclosure
- ❑ IBC Seismic Certification
- ❑ UL 2200 Listing

**Enclosed Unit**

- ❑ Snow Enclosure (sound enclosure with enclosed critical silencer, intake hood, and electrical package)
- ❑ 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 (Decision-Maker® 6000 and APM603 controllers only)
- ❑ (Decision-Maker® Paralleling System (DPS) (Decision-Maker® 6000 controller only)
- ❑ Dry Contact (isolated alarm) (Decision-Maker® 6000 controller only)
- ❑ Two Input/Five Output Module (APM402 controller only)
- ❑ Four Input/Fifteen Output Module (APM603 controller only)
- ❑ Lockable Emergency Stop Switch
- ❑ Remote Emergency Stop Switch
- ❑ Remote Serial Annunciator Panel
- ❑ Run Relay (standard with APM603, optional with others)
- ❑ Manual Key Switch (APM603 controller only)
- ❑ Manual Speed Adjust (APM402 controller only)

**Cooling System**

- ❑ Block Heater, 1800 W, 90-120 V, 1 Ph
- ❑ Block Heater, 2000 W, 190-240 V, 1 Ph
  Required for ambient temperatures below 0°C (32°F)
- ❑ Radiator Duct Flange

**Electrical System**

- ❑ Generator Heater
- ❑ Battery
- ❑ Battery Charger, Equalize/Float Type
- ❑ Battery Heater

**Miscellaneous**

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

**Literature**

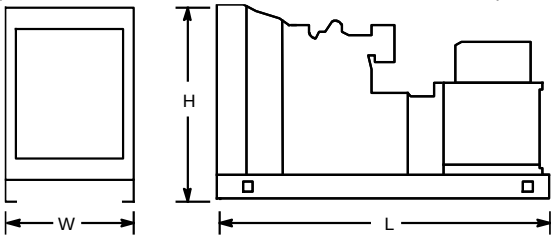
- ❑ General Maintenance
- ❑ NFPA 110
- ❑ Overhaul
- ❑ Production

**Warranty**

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

### Dimensions and Weights

| | |
|---|---|
| Overall Size, L x W x H, max., mm (in.): | 2950 x 1120 x 1524 (116.1 x 44.1 x 60.0) |
| Weight (radiator model), wet, max., kg (lb.): | 1295-1402 (2855-3090) |




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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