# Diesel Generator Set

## MTU 6R0150 DS230

230 kWe/60 Hz/Standby/208 - 600V

Reference MTU 6R0150 DS230 (210 kWe) for Prime Rating Technical Data

### System ratings

<table>
<thead>
<tr>
<th>Voltage (L-L)</th>
<th>240V</th>
<th>208V</th>
<th>240V</th>
<th>380V</th>
<th>480V</th>
<th>600V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>PF</td>
<td>1</td>
<td>0.8</td>
<td>0.8</td>
<td>0.8</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>Hz</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>kW</td>
<td>230</td>
<td>230</td>
<td>230</td>
<td>230</td>
<td>230</td>
<td>230</td>
</tr>
<tr>
<td>kVA</td>
<td>230</td>
<td>288</td>
<td>288</td>
<td>288</td>
<td>288</td>
<td>288</td>
</tr>
<tr>
<td>Amps</td>
<td>958</td>
<td>798</td>
<td>692</td>
<td>437</td>
<td>346</td>
<td>277</td>
</tr>
<tr>
<td>skVA@30% voltage dip</td>
<td>430</td>
<td>608</td>
<td>608</td>
<td>430</td>
<td>605</td>
<td>510</td>
</tr>
<tr>
<td>Generator model</td>
<td>432CSL6216</td>
<td>432CSL6210</td>
<td>432CSL6210</td>
<td>432CSL6210</td>
<td>431CSL6208</td>
<td>431PSL6243</td>
</tr>
<tr>
<td>Temp rise</td>
<td>130 °C/40 °C</td>
<td>130 °C/40 °C</td>
<td>130 °C/40 °C</td>
<td>130 °C/40 °C</td>
<td>130 °C/40 °C</td>
<td>130 °C/40 °C</td>
</tr>
<tr>
<td>Connection</td>
<td>DOUBLE DELTA</td>
<td>12 LEAD WYE</td>
<td>12 LEAD DELTA</td>
<td>12 LEAD WYE</td>
<td>12 LEAD WYE</td>
<td>4 LEAD WYE</td>
</tr>
</tbody>
</table>

### Certifications and standards

- **Emissions**
  - EPA Tier 3 certified
- **Generator set is designed and manufactured in facilities certified to standards ISO 9001:2008 and ISO 14001:2004**
- **Seismic certification** - optional
  - IBC certification
  - OSHPD Pre-approval
- **UL 2200** - optional
- **CSA** - optional
  - CSA C22.2 No. 100
  - CSA C22.2 No. 14
- **Performance Assurance Certification (PAC)**
  - Generator set tested to ISO 8528-5 for transient response
  - Verified product design, quality and performance integrity
  - All engine systems are prototype and factory tested
- **Power rating**
  - Accepts rated load in one step per NFPA 110
  - Permissible average power output during 24 hours of operation is approved up to 85%
**Standard features***

- MTU is a single source supplier
- Global product support
- 2 year standard warranty
- 6090HF484 diesel engine
  - 9.0 liter displacement
  - Common rail fuel injection
  - 4-cycle
- Engine-generator resilient mounted
- Complete range of accessories
- Cooling system
  - Integral set-mounted
  - Engine-driven fan

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**Generator**

- Brushless, rotating field generator
- 2/3 pitch windings
- 300% short circuit capability with optional Permanent Magnet Generator (PMG)

**Digital control panel(s)**

- UL recognized, CSA certified, NFPA 110
- Complete system metering
- LCD display

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**Standard equipment***

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**Engine**

- Air cleaner
- Oil pump
- Oil drain extension and S/O valve
- Full flow oil filter
- Open crankcase ventilation
- Jacket water pump
- Thermostat
- Blower fan and fan drive
- Radiator - unit mounted
- Electric starting motor - 24V
- Governor – electronic isochronous
- Base - formed steel
- SAE flywheel and bell housing
- Charging alternator - 24V
- Battery rack and cables
- Flexible fuel connectors
- Flexible exhaust connection
- EPA certified engine

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**Generator**

- NEMA MGI, 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
- Self-ventilated and drip-proof
- Superior voltage waveform
- Digital, solid state, volts-per-hertz regulator
- No load to full load regulation
- Brushless alternator with brushless pilot exciter
- 4 pole, rotating field
- 130 °C maximum standby temperature rise
- 1-bearing, sealed
- Flexible coupling
- Full amortisseur windings
- 125% rotor balancing
- 3-phase voltage sensing
- ±1% voltage regulation
- 100% of rated load - one step
- 5% maximum total harmonic distortion

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* Represents standard product only. Consult the factory/MTU Distributor for additional configurations.
## Application data

### Engine
- **Manufacturer**: John Deere
- **Model**: 6090HF484
- **Type**: 4-cycle, 6-inline
- **Displacement**: 9L (549)
- **Bore**: 11.84 cm (4.7 in)
- **Stroke**: 13.6 cm (5.4 in)
- **Compression ratio**: 16:1
- **Rated rpm**: 1,800
- **Engine governor**: JDEC
- **Maximum power**: 315 kW (422 bhp)
- **Speed regulation**: ± 0.25%
- **Air cleaner**: dry

### Liquid capacity (Lubrication)
- **Total oil system**: 31 L (8.19 gal)
- **Engine jacket water capacity**: 16 L (4.23 gal)
- **System coolant capacity**: 53.5 L (14.13 gal)

### Electrical
- **Electric volts DC**: 24
- **Cold cranking amps under -17.8 °C (0 °F)**: 950

### Fuel system
- **Fuel supply connection size**: -10 JIC 37° female
- **Fuel return Connection size**: -6 JIC 37° female
- **Max. fuel Lift**: 1.3 m (4.4 ft)
- **Recommended fuel**: diesel #2
- **Total fuel flow**: 239.92 L/hr (63.38 gal/hr)

### Fuel consumption
- **At 100% of power rating**: 74.3 L/hr (19.6 gal/hr)
- **At 75% of power rating**: 64.2 L/hr (16.96 gal/hr)
- **At 50% of power rating**: 45.5 L/hr (12.01 gal/hr)

### Cooling - radiator system
- **Ambient capacity of radiator**: 50 L (122 gal)
- **Maximum restriction of cooling air**: 0.124 kPa (0.5 in. H₂O)
- **Water pump capacity**: 280 L/min (gpm)
- **Heat rejection to coolant**: 104 kW (BTUM)
- **Heat rejection to air to air**: 88 kW (BTUM)
- **Heat radiated to ambient**: 34.1 kW (BTUM)
- **Fan power**: 13.9 kW (18.6 hp)

### Air requirements
- **Aspirating**: 25.5 m³/min (901 SCFM)
- **Air flow required for radiator cooled unit**: 507.6 m³/min (17,926 SCFM)
- **Remote cooled applications**: 123.8 m³/min (4,374 SCFM)
  * Air density = 1.184 kg/m³ (0.0739 lbm/ft³)

### Exhaust system
- **Gas temp. (stack)**: 638 °C (1,180 °F)
- **Gas volume at stack temp**: 59 m³/min (2084 CFM)
- **Maximum allowable back pressure at outlet of engine, before piping**: 7.5 kPa (0.30 in. H₂O)

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MTU 6R0150 DS230 (230 kWe) - Standby / 03
Weights and dimensions

<table>
<thead>
<tr>
<th>System</th>
<th>Dimensions (L x W x H)</th>
<th>Weight (dry/less tank)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open power unit (OPU)</td>
<td>3,658 x 1,524 x 2,159 mm (144 x 60 x 85 in)</td>
<td>3,080 kg (6,790 lb)</td>
</tr>
</tbody>
</table>

Weights and dimensions are based on open power units and are estimates only. Consult the factory for accurate weights and dimensions for your specific generator set.

Sound data

<table>
<thead>
<tr>
<th>Unit type</th>
<th>Standby full load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 0: Open power unit</td>
<td>84.5</td>
</tr>
</tbody>
</table>

Sound data is provided at 7 m (23 ft). Generator set tested in accordance with ISO 8528-10 and with infinite exhaust.

Emissions data

<table>
<thead>
<tr>
<th>NOx + NMHC</th>
<th>CO</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.14</td>
<td>0.32</td>
<td>0.03</td>
</tr>
</tbody>
</table>

All units are in g/hp-hr and shown at 100% load (not comparable to EPA weighted cycle values). Emission levels of the engine may vary with ambient temperature, barometric pressure, humidity, fuel type and quality, installation parameters, measuring instrumentation, etc. The data was obtained in compliance with US EPA regulations. The weighted cycle value (not shown) from each engine is guaranteed to be within the US EPA standards.

Rating definitions and conditions

- 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. No overload capability for this rating. Ratings are in accordance with ISO 8528-1, ISO 3046-1, BS 5514, and AS 2789. Average load factor: ≤ 85%.
- Consult your local MTU Distributor for derating information.