Diesel Generator Set

MTU 4R0113 DS100

100 kWe/60 Hz/Standby/208 - 600V
Reference MTU 4R0113 DS100 (90 kWe) for Prime Rating Technical Data

System ratings

<table>
<thead>
<tr>
<th>Voltage (L-L)</th>
<th>240V †</th>
<th>240V †</th>
<th>208V †</th>
<th>240V †</th>
<th>480V †</th>
<th>600V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>PF</td>
<td>1</td>
<td>1</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>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>kVA</td>
<td>100</td>
<td>100</td>
<td>125</td>
<td>125</td>
<td>125</td>
<td>125</td>
</tr>
<tr>
<td>Amps</td>
<td>417</td>
<td>417</td>
<td>347</td>
<td>301</td>
<td>150</td>
<td>120</td>
</tr>
<tr>
<td>skVA@30% voltage dip</td>
<td>136</td>
<td>311</td>
<td>258</td>
<td>258</td>
<td>344</td>
<td>270</td>
</tr>
<tr>
<td>Generator model</td>
<td>431CSL6204</td>
<td>363CSL1617</td>
<td>362CSL1606</td>
<td>362CSL1606</td>
<td>362CSL1606</td>
<td>362PSL1636</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>12 LEAD DOUBLE DELTA</td>
<td>4 LEAD</td>
<td>12 LEAD LOW WYE</td>
<td>12 LEAD HI DELTA</td>
<td>12 LEAD HI WYE</td>
<td>4 LEAD WYE</td>
</tr>
</tbody>
</table>

† UL 2200 offered

Certifications and standards

- Emissions
  - EPA Tier 3 certified
  - South Coast Air Quality Management District (SCAQMD)
- Generator set is designed and manufactured in facilities certified to standards ISO 9001:2008 and ISO 14001:2004
- UL 2200 - optional (refer to System ratings for availability)
- 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
Standard features

- MTU is a single source supplier
- Global product support
- 2 year standard warranty
- 4045HF285 diesel engine
  - 4.5 liter displacement
  - 4-cycle
- Engine-generator resilient mounted
- Complete range of accessories
- Cooling system
  - Integral set-mounted
  - Engine-driven fan
- Digital control panel(s)
  - Digital metering
  - Engine parameters
  - Generator protection functions
  - Engine protection
  - SAE J1939 Engine ECU Communications
  - Windows®-based software
  - Multilingual capability
  - Remote communications to RDP-110 remote annunciator
  - Programmable input and output contacts
  - UL recognized, CSA certified, CE approved
  - Event recording
  - IP 54 front panel rating with integrated gasket
  - NFPA 110 compatible

Standard equipment

Engine
- Air cleaner
- Oil pump
- Oil drain extension and S/O valve
- Full flow oil filter
- Fuel filter with water separator
- Jacket water pump
- Thermostat
- Blower fan and fan drive
- Radiator - unit mounted
- Electric starting motor - 12V
- Governor – electronic isochronous
- Base - formed steel
- SAE flywheel and bell housing
- Charging alternator - 12V
- Battery box and cables
- Flexible fuel connectors
- Flexible exhaust connection
- EPA certified engine

Generator
- NEMA MGI, IEEE, and ANSI standards compliance for temperature rise and motor starting
- Self-ventilated and drip-proof
- Superior voltage waveform
- Solid state, volts-per-hertz regulator
- ±1% voltage regulation no load to full load
- 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
- 100% of rated load - one step
- 5% maximum total harmonic distortion

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

#### Engine
- **Manufacturer**: John Deere
- **Model**: 4045HF285
- **Type**: 4-cycle
- **Arrangement**: 4-inline
- **Displacement**: 4.5 L (275 in³)
- **Bore**: 10.6 cm (4.19 in)
- **Stroke**: 12.7 cm (5 in)
- **Compression ratio**: 19:1
- **Rated rpm**: 1,800
- **Engine governor**: JDEC
- **Maximum power**: 118 kW (158 bhp)
- **Speed regulation**: ± 0.25%
- **Air cleaner**: dry

#### Liquid capacity (Lubrication)
- **Total oil system**: 12 L (3.2 gal)
- **Engine jacket water capacity**: 12.5 L (3.3 gal)
- **System coolant capacity**: 20.1 L (5.3 gal)

#### Electrical
- **Electric volts DC**: 12
- **Cold cranking amps under -17.8 °C (0 °F)**: 925

#### Fuel system
- **Fuel supply connection size**: -6 JIC 37° female
- **Fuel return connection size**: -6 JIC 37° female
- **Maximum fuel lift**: 2 m (6.7 ft)
- **Recommended fuel**: diesel #2
- **Total fuel flow**: 74.6 L/hr (19.7 gal/hr)

#### Fuel consumption
- **At 100% of power rating**: L/hr (gal/hr) 31 (8.2)
- **At 75% of power rating**: L/hr (gal/hr) 25 (6.6)
- **At 50% of power rating**: L/hr (gal/hr) 17.8 (4.7)

#### Cooling - radiator system
- **Ambient capacity of radiator**: °C (°F) 50 (122)
- **Maximum restriction of cooling air**: kPa (in. H₂O) 0.12 (0.5)
- **Water pump capacity**: L/min (gpm) 180 (48)
- **Heat rejection to coolant**: kW (BTUM) 62 (3,544)
- **Heat rejection to air to air**: kW (BTUM) 19.8 (1,127)
- **Heat radiated to ambient**: kW (BTUM) 16.2 (919)
- **Fan power**: kW (hp) 6.5 (8.7)

#### Air requirements
- **Aspirating**: m³/min (SCFM) 8.2 (288)
- **Remote cooled applications**: m³/min (SCFM) 187 (6,587)
- **Air flow required for radiator cooled unit**: m³/min (SCFM) 59 (2,074)
- **Air flow required for dissipation of radiated generator set heat for a maximum of 25 °F rise**: m³/min (SCFM) 59 (2,074)
- **Air density**: 1.184 kg/m³ (0.0739 lbm/ft³)

#### Exhaust system
- **Gas temp. (stack)**: °C (°F) 580 (1,076)
- **Gas volume at stack temp.**: m³/min (CFM) 22.8 (805)
- **Maximum allowable back pressure at outlet of engine, before piping**: kPa (in. H₂O) 7.5 (30)
Weights and dimensions

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.

<table>
<thead>
<tr>
<th>System</th>
<th>Dimensions (L x W x H)</th>
<th>Weight (less tank)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open power unit (OPU)</td>
<td>2,540 x 1,219 x 1,473 mm (100 x 48 x 58 in)</td>
<td>1,196-1,839 kg (2,637-4,054 lb)</td>
</tr>
</tbody>
</table>

Sound data

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

<table>
<thead>
<tr>
<th>Unit type</th>
<th>Standby full load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 0: Open power unit: dB(A)</td>
<td>83.6</td>
</tr>
</tbody>
</table>

Emissions data

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. 5-mode emission data per 40 CFR 89 or 40 CFR 1039 (as applicable) is available upon request.

<table>
<thead>
<tr>
<th>NOx + NMHC</th>
<th>CO</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.97</td>
<td>0.72</td>
<td>0.08</td>
</tr>
</tbody>
</table>

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 3046-1, BS 5514, and AS 2789. Average loadfactor: ≤ 85%.
— Consult your local MTU Distributor for derating information.