Diesel Generator Set

MTU 4R0120 DS100

100 kWe/60 Hz/Standby/208 - 600V
Reference MTU 4R0120 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>380V †</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>
<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>
<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>
<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>
<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>
<td>125</td>
</tr>
<tr>
<td>Amps</td>
<td>417</td>
<td>417</td>
<td>347</td>
<td>301</td>
<td>190</td>
<td>150</td>
<td>120</td>
</tr>
<tr>
<td>skVA@30% voltage dip</td>
<td>107</td>
<td>311</td>
<td>258</td>
<td>258</td>
<td>268</td>
<td>344</td>
<td>272</td>
</tr>
<tr>
<td>Generator model</td>
<td>431CSL6202</td>
<td>363CSL1617</td>
<td>362CSL1606</td>
<td>362CSL1606</td>
<td>363CSL1607</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>
<td>130 °C/40 °C</td>
</tr>
<tr>
<td>Connection</td>
<td>12 LEAD DOUBLE DELTA</td>
<td>4 LEAD</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>

† UL 2200 offered

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
- Power rating
  - Accepts rated load in one step per NFPA 110
  - UL 2200 – optional (refer to System ratings for availability)
- CSA – optional
  - CSA C22.2 No. 100
  - CSA C22.2 No. 14
- CE marking provided
- 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
Standard features

- MTU is a single source supplier
- Global product support
- 2 year standard warranty
- OM924LA diesel engine
  - 4.8 liter displacement
  - 4-cycle
- Engine-generator resilient mounted
- Complete range of accessories
- Cooling system
  - Integral set-mounted
  - Engine-driven fan
- 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

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
- Thermostats
- 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 MG1, 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: Mercedes-Benz
- Model: OM924LA
- Type: 4-cycle
- Arrangement: 4-inline
- Displacement: L (in³) 4.8 (293)
- Bore: cm (in) 10.6 (4.17)
- Stroke: cm (in) 13.6 (5.35)
- Compression ratio: 17.5:1
- Rated rpm: 1,800
- Engine governor: MR2 / CPC4-ECAN
- Maximum power: kWm (bhp) 147 (197)
- Speed regulation: ± 0.25%
- Air cleaner: dry

**Liquid capacity (Lubrication)**
- Total oil system: L (gal) 15.8 (4.2)
- Engine jacket water capacity: L (gal) 7 (1.8)
- System coolant capacity: L (gal) 20.8 (5.5)

**Electrical**
- Electric volts DC: 12
- Cold cranking amps under -17.8 °C (0 °F): 950

**Fuel system**
- Fuel supply connection size: -6 JIC
- Fuel supply hose size: 3/8” ID
- Fuel return connection size: -6 JIC
- Fuel return hose size: 3/8” ID
- Maximum fuel lift: m (ft) 2.7 (9)
- Recommended fuel: diesel #2
- Total fuel flow: L/hr (gal/hr) 328.2 (86.7)

**Fuel consumption**
- At 100% of power rating: L/hr (gal/hr) 28.4 (7.5)
- At 75% of power rating: L/hr (gal/hr) 21.3 (5.6)
- At 50% of power rating: L/hr (gal/hr) 15.5 (4.1)

* Based on 362CSL1606 480 volt generator set

**Cooling - radiator system**
- Ambient capacity of radiator: °C (°F) 50 (122)
- Maximum restriction of cooling air:
  - intake and discharge side of radiator: kPa (in. H₂O) 0.12 (0.5)
- Water pump capacity: L/min (gpm) 143 (37)
- Heat rejection to coolant: kW (BTUM) 46.3 (2,633)
- Heat rejection to air to air: kW (BTUM) 26.9 (1,530)
- Heat radiated to ambient: kW (BTUM) 27.1 (1,541)
- Fan power: kW (hp) 3.3 (4.4)

**Air requirements**
- Aspirating: *m³/min (SCFM) 9.1 (321)
- Air flow required for radiator cooled unit: *m³/min (SCFM) 209 (7,381)
- Remote cooled applications; air flow required for dissipation of radiated generator set heat for a maximum of 25 °F rise: *m³/min (SCFM) 99.1 (3,500)

* Air density = 1.184 kg/m³ (0.0739 lbm/ft³)

**Exhaust system**
- Gas temp. (stack): °C (°F) 404 (759)
- Gas volume at stack temp: m³/min (CFM) 24.1 (851)
- Maximum allowable back pressure at outlet of engine, before piping: kPa (in. H₂O) 6.5 (26)
Weights and dimensions

<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>2,336 x 1,121 x 1,422 mm (92 x 44.1 x 56 in)</td>
<td>1,216-1,830 kg (2,682-4,034 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: dB(A)</td>
<td>83</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>3.61</td>
<td>1.42</td>
<td>0.08</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 3046-1, BS 5514, and AS 2789. Average loadfactor: ≤ 85%.
— Consult your local MTU Distributor for derating information.