Diesel Generator Set

mtu 4R0120 DS100

90 kWe/60 Hz/Prime/208 - 600V
Reference mtu 4R0120 DS100 (100 kWe) for Standby 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>90</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>kVA</td>
<td>90</td>
<td>90</td>
<td>113</td>
<td>113</td>
<td>113</td>
<td>113</td>
<td>113</td>
</tr>
<tr>
<td>Amps</td>
<td>375</td>
<td>375</td>
<td>312</td>
<td>271</td>
<td>171</td>
<td>135</td>
<td>108</td>
</tr>
<tr>
<td>skVA@30% voltage dip</td>
<td>145</td>
<td>311</td>
<td>258</td>
<td>258</td>
<td>269</td>
<td>344</td>
<td>272</td>
</tr>
<tr>
<td>Generator model</td>
<td>363CSL1607</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>105 °C/40 °C</td>
<td>105 °C/40 °C</td>
<td>105 °C/40 °C</td>
<td>105 °C/40 °C</td>
<td>105 °C/40 °C</td>
<td>105 °C/40 °C</td>
<td>105 °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
  - 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
- Seismic certification – optional
  - 2018 IBC certification
  - HCAI 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

- Single source supplier
- Global product support
- Two (2) Year/3,000 Hour Basic Limited 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 shut-off 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

**Digital control panel(s)**

- Digital metering
- Engine parameters
- Generator protection functions
- Engine protection
- SAE J1939 Engine ECU Communications
- Windows®-based software
- Multilingual capability
- Communications to 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

**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
- 105 °C maximum prime 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/mtuDistributor for additional configurations.
### Application data

#### Engine

- **Manufacturer:** Mercedes-Benz
- **Model:** OM924LA
- **Type:** 4-cycle, 4-inline
- **Displacement:** 4.8 (293) L
- **Bore:** 10.6 (4.17) cm (in)
- **Stroke:** 13.6 (5.35) cm (in)
- **Compression ratio:** 17.5:1
- **Rated rpm:** 1,800
- **Engine governor:** MR2 / CPC4-ECAN
- **Maximum power:** 134 (180) kWm (bhp)
- **Steady state frequency band:** ± 0.25%
- **Air cleaner:** dry

#### Liquid capacity

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

#### Electrical

- **Electric volts DC:** 12
- **Cold cranking amps under -17.8 °C (0 °F):** 950
- **Batteries:** group size: 31, quantity: 1

#### 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:** 2.7 (9) ft
- **Recommend fuel:** diesel #2
- **Total fuel flow:** 328.2 (86.7) L/hr (gal/hr)

#### Fuel consumption*

<table>
<thead>
<tr>
<th>Condition</th>
<th>Flow (L/hr)</th>
<th>Flow (gal/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% of power rating</td>
<td>25.3</td>
<td>6.7</td>
</tr>
<tr>
<td>75% of power rating</td>
<td>19.6</td>
<td>5.2</td>
</tr>
<tr>
<td>50% of power rating</td>
<td>14.2</td>
<td>3.7</td>
</tr>
</tbody>
</table>

* Based on 362CSSL1606 480 volt generator set

#### Cooling - radiator system

- **Ambient capacity of radiator:** 50 (122) °C (°F)
- **Maximum restriction of cooling air:**
  - Intake and discharge side of radiator: 0.12 (0.5) kPa (in. H₂O)
  - Water pump capacity: 184 (43) L/min (gpm)
  - Heat rejection to coolant: 41.4 (2,354) kW (BTUM)
  - Heat rejection to air to air: 25.3 (1,439) kW (BTUM)
  - Heat radiated to ambient: 24.7 (1,405) kW (BTUM)
- **Fan power:** 3.3 (4.4) kW (hp)

#### Air requirements

- **Aspirating:** 8.9 (314) m³/min (SCFM)
- **Remote cooled applications; air flow required for dissipation of radiated generator set heat for a maximum of 25 °F rise:** 90.2 (3,185) m³/min (SCFM)

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

#### Exhaust system

- **Gas temperature (stack):** 374 (706) °C (°F)
- **Gas volume at stack temperature:** 22.8 (805) m³/min (CFM)
- **Maximum allowable back pressure:** 6.5 (26) kPa (in. H₂O)
Weights and dimensions

<table>
<thead>
<tr>
<th>System</th>
<th>Dimensions (L x W x H)</th>
<th>Weight</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>Prime full load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 0 (OPU): dB(A)</td>
<td>83.3</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>

Rating definitions and conditions

- Prime power ratings apply to installations where utility power is unavailable or unreliable. 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, overload power in accordance with ISO 3046-1, BS 5514, and AS 2789. Average load factor: ≤ 75%.
- Nominal ratings at standard conditions: 25 °C and 300 meters (77 °F and 1,000 feet).
- Deration factor:
  - Consult your local mtu Distributor for altitude derations.
  - Consult your local mtu Distributor for temperature derations.