Diesel Generator Set

mtu 10V1600 DS550

500 kVA/50 Hz/Prime (Fuel-Optimized)/380 - 415V
Reference mtu 10V1600 DS550 (550 kVA Fuel-Optimized) for Standby Rating Technical Data

System ratings **

<table>
<thead>
<tr>
<th>Voltage (L-L)</th>
<th>380V</th>
<th>400V</th>
<th>415V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>PF</td>
<td>0.8</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>Hz</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>kVA</td>
<td>400</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>kW</td>
<td>500</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>kVA</td>
<td>760</td>
<td>722</td>
<td>696</td>
</tr>
<tr>
<td>Amps</td>
<td>980</td>
<td>1,100</td>
<td>1,200</td>
</tr>
<tr>
<td>skVA@30% voltage dip</td>
<td>572RSL4029</td>
<td>572RSL4029</td>
<td>572RSL4029</td>
</tr>
<tr>
<td>Generator model</td>
<td>125 °C/40 °C</td>
<td>125 °C/40 °C</td>
<td>125 °C/40 °C</td>
</tr>
<tr>
<td>Temp rise</td>
<td>4 LEAD WYE</td>
<td>4 LEAD WYE</td>
<td>4 LEAD WYE</td>
</tr>
<tr>
<td>Connection</td>
<td>4 LEAD WYE</td>
<td>4 LEAD WYE</td>
<td>4 LEAD WYE</td>
</tr>
</tbody>
</table>

** Prime technical data is for a fuel-optimized prime unit.

Certifications and standards

- 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
- 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 75%.
Standard features

- Single source supplier
- Global product support
- Two (2) Year/3,000 Hour Basic Limited Warranty
- 10V1600 diesel engine
  - 17.5 liter displacement
  - Common rail fuel injection
  - 4-cycle
- Engine-generator resilient mounted
- Complete range of accessories
- Cooling system
  - Integral set-mounted
  - Engine-driven fan

Generator
- 250% short circuit capability
- Digital control panel(s)
  - UL recognized, CSA certified, NFPA 110
  - Complete system metering
  - LCD display

Standard equipment

Engine
- Air cleaners
- Oil pump
- Oil drain extension and shut-off valve
- Full flow oil filter
- Closed crankcase ventilation
- Jacket water pump
- Thermostats
- 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 box and cables
- Flexible fuel connectors
- Flexible exhaust connection

Generator
- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting
- Sustained short circuit current of up to 250% of the rated current for up to 10 seconds
- Self-ventilated and drip-proof
- Superior voltage waveform
- Digital, solid state, volts-per-hertz regulator
- Brushless alternator with brushless pilot exciter
- 4 pole, rotating field
- 125 °C maximum prime temperature rise
- 1-bearing, sealed
- Flexible coupling
- Full amortisseur windings
- 125% rotor balancing
- 3-phase voltage sensing
- ± 0.25% voltage regulation no load to full load
- 100% of rated load - one step
- 5% maximum total harmonic distortion

* Represents standard product only. Consult the factory/mtu Distributor for additional configurations.

mtu 10V1600 DS550 (500 kVA) - Prime - Fuel Opt / 02
Application data

Engine
Manufacturer: mtu
Model: 10V1600G2OF
Type: 4-cycle
Arrangement: 10-V
Displacement: 17.5 (1,068)
Bore: 12.2 (4.8)
Stroke: 15 (5.91)
Compression ratio: 17.5:1
Rated rpm: 1,500
Engine governor: electronic isochronous (ADEC)
Maximum power: 448 (601)
Steady state frequency band: ± 0.25%
Air cleaner: dry

Liquid capacity
Total oil system: 61 (16)
Engine jacket water capacity: 60 (15.9)
System coolant capacity: 99.3 (26.2)

Electrical
Electric volts DC: 24
Cold cranking amps under -17.8 °C (0 °F): 1,050
Batteries: group size: 4D
Batteries: quantity: 2

Fuel system
Fuel supply connection size: -10 JIC 37° female
Fuel return connection size: -6 JIC 37° female
Maximum fuel lift: 5 (16)
Recommended fuel: diesel #2
Total fuel flow: 340.7 (90)

Fuel consumption **
At 100% of power rating: 100 (26.4)
At 75% of power rating: 78 (20.6)
At 50% of power rating: 57 (15.1)

Cooling - radiator system **
Ambient capacity of radiator: 50 (122)
Maximum restriction of cooling air: intake and discharge side of radiator: 0.2 (0.8)
Water pump capacity: 390 (103)
Heat rejection to coolant: 216 (12,283)
Heat rejection to after cooler: 60 (3,412)
Heat radiated to ambient: 46.5 (2,644)
Fan power: 16.4 (22)

Air requirements **
Aspirating: 27 (953)
Air flow required for radiator cooled unit: 554 (19,564)
Remote cooled applications; air flow required for dissipation of radiated generator set heat for a maximum of 25 °F rise: 169 (5,964)
* Air density = 1.184 kg/m³ (0.0739 lbm/ft³)

Exhaust system **
Gas temperature (stack): 520 (968)
Gas volume at stack temperature: 75 (2,649)
Maximum allowable back pressure at outlet of engine, before piping: 8.5 (34.1)

** Prime technical data is for a fuel-optimized prime unit.
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>3,416 x 1,873 x 2,032 mm (134.5 x 73.8 x 80 in)</td>
<td>4,175-5,129 kg (9,205-11,308 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>88.3</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>NO₂ + NMHC</th>
<th>CO</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>C/F</td>
<td>C/F</td>
<td>C/F</td>
</tr>
</tbody>
</table>

C/F = Consult Factory / mtu Distributor
N/A = Not Available

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, 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.