Diesel Generator Set

MTU 18V2000 DS1250

1,000 kWe/60 Hz/Prime/380 - 4,160V
Reference MTU 18V2000 DS1250 (1,250 kWe) for Standby Rating

Technical Data

System ratings

<table>
<thead>
<tr>
<th>Voltage (L-L)</th>
<th>380V †‡</th>
<th>480V †‡</th>
<th>600V ‡</th>
<th>4,160V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase</td>
<td>3</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>
<td>0.8</td>
</tr>
<tr>
<td>Hz</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>kW</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td>kVA</td>
<td>1,250</td>
<td>1,250</td>
<td>1,250</td>
<td>1,250</td>
</tr>
<tr>
<td>Amps</td>
<td>1,899</td>
<td>1,504</td>
<td>1,203</td>
<td>173</td>
</tr>
<tr>
<td>kvA@30% voltage dip</td>
<td>1,870</td>
<td>2,590</td>
<td>2,590</td>
<td>2,600</td>
</tr>
<tr>
<td>Generator model*</td>
<td>742RSL4048</td>
<td>741RSL4045</td>
<td>741RSS4284</td>
<td>742FSM4364</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>
</tr>
<tr>
<td>Connection</td>
<td>4 LEAD WYE</td>
<td>4 LEAD WYE</td>
<td>4 LEAD WYE</td>
<td>6 LEAD WYE</td>
</tr>
</tbody>
</table>

* Consult the factory for alternate configuration.
† UL 2200 offered
‡ CSA offered

Certifications and standards

- Emissions
  - Fuel consumption optimized
- 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 (refer to System ratings for availability)
  - 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 75%.
Standard features

- MTU is a single source supplier
- Global product support
- 2 year standard warranty
- 18V2000 diesel engine
  - 4.2 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
  - Brushless, rotating field generator
  - 2/3 pitch windings
  - PMG (Permanent Magnet Generator) supply to regulator
  - 300% 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 S/O valve
- Full flow oil filter
- Closed 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

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
- 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
- 105 °C maximum prime temperature rise
- 1-bearing, sealed
- Flexible coupling
- Full amortisseur windings
- 125% rotor balancing
- 3-phase voltage sensing
- ±0.25% voltage regulation
- 100% of rated load - one step
- 5% maximum total harmonic distortion

Digital control panel(s)
- Digital metering
- Engine parameters
- Generator protection functions
- Engine protection
- CANBus 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

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

#### Engine
- **Manufacturer:** MTU
- **Model:** 18V2000B76
- **Type:** 4-cycle
- **Arrangement:** 18V
- **Displacement:** L (in³) 40.2 (2,448)
- **Bore:** cm (in) 13.5 (5.3)
- **Stroke:** cm (in) 15.6 (6.15)
- **Compression ratio:** 17.5:1
- **Rated rpm:** 1,800
- **Engine governor:** electronic isochronous (ADEC)
- **Maximum power:** kWm (bhp) 1,097 (1,471)
- **Speed regulation:** ± 0.25%
- **Air cleaner:** dry

#### Liquid capacity (Lubrication)
- **Total oil system:** L (gal) 122 (32.2)
- **Engine jacket water capacity:** L (gal) 73 (19.3)
- **System coolant capacity:** L (gal) 185 (48.9)

#### Electrical
- **Electric volts DC:** 24
- **Cold cranking amps under -17.8 °C (0 °F):** 2,800

#### Fuel system
- **Fuel supply connection size:** #12 JIC 37° female
- **Fuel return connection size:** #12 JIC 37° female
- **Maximum fuel lift:** m (ft) 5 (16)
- **Recommended fuel:** diesel #2
- **Total fuel flow:** L/hr (gal/hr) 1,500 (396)

#### Fuel consumption
- **At 100% of power rating:** L/hr (gal/hr) 254 (67)
- **At 75% of power rating:** L/hr (gal/hr) 192 (51)
- **At 50% of power rating:** L/hr (gal/hr) 133 (35)

#### Cooling - radiator system
- **Ambient capacity of radiator:** °C (°F) 50 (122)
- **Maximum restriction of cooling air:**
  - intake and discharge side: kPa (in. H₂O) 0.12 (0.5)
  - Water pump capacity: L/min (gpm) 950 (251)
- **Heat rejection to coolant:** kW (BTUM) 430 (24,454)
- **Heat rejection to after cooler:** kW (BTUM) 285 (16,208)
- **Heat radiated to ambient:** kW (BTUM) 107 (6,079)
- **Fan power:** kW (hp) 33.5 (44.9)

#### Air requirements
- **Aspirating:** m³/min (SCFM) 96.6 (3,411)
- **Remote cooled applications:** m³/min (SCFM) 1,512 (53,396)
- **Maximum restriction of cooling air:** kPa (in. H₂O)
  - intake and discharge side: 0.12 (0.5)
  - Water pump capacity: L/min (gpm)
  - Heat rejection to coolant: kW (BTUM) 430 (24,454)
  - Heat rejection to after cooler: kW (BTUM) 285 (16,208)
- **Heat radiated to ambient:** kW (BTUM) 107 (6,079)
- **Fan power:** kW (hp) 33.5 (44.9)

#### Exhaust system
- **Gas temp. (stack):** °C (°F) 420 (788)
- **Gas volume at stack temp.:** m³/min (CFM) 222 (7,840)
- **Maximum allowable back pressure at outlet of engine, before piping:** kPa (in. H₂O) 5 (20)

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

Drawing above for illustration purposes only, based on standard open power 480 volt generator set. Lengths may vary with other voltages. Do not use for installation design. See website for unit specific template drawings.

<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>5,036 x 2,275 x 2,454 mm (198.3 x 89.6 x 96.6 in)</td>
<td>9,525 kg (21,000 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:</td>
<td></td>
</tr>
<tr>
<td>Open power unit: dBA</td>
<td>90.2</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>4.77</td>
<td>0.15</td>
<td>0.01</td>
</tr>
</tbody>
</table>

— All units are in g/hp-hr and at 100% load. Emission levels of the engine may vary as a function of ambient temperature, barometric pressure, humidity, fuel type and quality, installation parameters, measuring instrumentation, etc. The data provided are laboratory results from one engine representing this rating. The data was obtained under controlled environmental conditions with calibrated instrumentation traceable to the United States National Bureau of Standards and in compliance with US EPA regulations found within 40 CFR Part 89. The weighted cycle value (not shown) from each engine is guaranteed to be below the US EPA Standards at the US EPA defined conditions.

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%.

— Consult your local MTU Distributor for derating information.