Diesel Generator Set

MTU 4R0113 DS40

40 kWe/60 Hz/Standby/208 - 600V
Reference MTU 4R0113 DS40 (40 kWe) for Prime Rating Technical Data

System ratings

<table>
<thead>
<tr>
<th>Voltage (L-L)</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>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>PF</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>
</tr>
<tr>
<td>kW</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>kVA</td>
<td>40</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Amps</td>
<td>166</td>
<td>138</td>
<td>120</td>
<td>76</td>
<td>60</td>
<td>48</td>
</tr>
<tr>
<td>skVA@30% voltage dip</td>
<td>63</td>
<td>129</td>
<td>129</td>
<td>112</td>
<td>172</td>
<td>92</td>
</tr>
<tr>
<td>Generator model</td>
<td>361CSL1601</td>
<td>361CSL1601</td>
<td>361CSL1601</td>
<td>361CSL1601</td>
<td>361PSL1632</td>
<td></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></td>
</tr>
<tr>
<td>Connection</td>
<td>12 LEAD DOUBLE DELTA</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
- 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
- 4045TF280 diesel engine
  - 4.5 liter displacement
  - Mechanical injection pump
  - 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 cleaners
- 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 - mechanical droop
- 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  4045TF280
Type  4-cycle
Arrangement  4-inline
Displacement: L (in³)  4.5 (275)
Bore: cm (in)  10.6 (4.19)
Stroke: cm (in)  12.7 (5)
Compression ratio  19:1
Rated rpm  1,800
Engine governor  mechanical droop
Maximum power: kWm (bhp)  63 (85)
Speed regulation  ± 0.5%
Air cleaner  dry

Fuel consumption
At 100% of power rating: L/hr (gal/hr)  17.4 (4.6)
At 75% of power rating: L/hr (gal/hr)  13.6 (3.6)
At 50% of power rating: L/hr (gal/hr)  9.5 (2.5)

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)  144 (38)
Heat rejection to coolant: kW (BTUM)  36 (2,049)
Heat radiated to ambient: kW (BTUM)  6.8 (384)
Fan power: kW (hp)  1.6 (2.2)

Liquid capacity (Lubrication)
Total oil system: L (gal)  13 (3.4)
Engine jacket water capacity: L (gal)  8.5 (2.3)
System coolant capacity: L (gal)  18.9 (5)

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

Air requirements
Aspirating: *m³/min (SCFM)  5.3 (187)
Air flow required for radiator cooled unit: *m³/min (SCFM)  117 (4,088)
Remote cooled applications; air flow required for dissipation of radiated generator set heat for a maximum of 25 °F rise: *m³/min (SCFM)  25 (867)

Fuel system
Fuel supply connection size  3/8" NPT
Fuel return connection size  3/8" NPT
Maximum fuel lift: m (ft)  1.8 (6)
Recommended fuel  diesel #2
Total fuel flow: L/hr (gal/hr)  62.5 (16.5)

Air requirements
Gas temp. (stack): °C (°F)  579 (1,074)
Gas volume at stack temp: m³/min (CFM)  19.2 (679)
Maximum allowable back pressure at outlet of engine, before piping: kPa (in. H₂O)  7.5 (30)
Minimum allowable back pressure: kPa (in H₂O)  N/A

Exhaust system
Weights and dimensions

<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>1,781 x 800 x 1,321 mm (70.1 x 31.5 x 52 in)</td>
<td>943-1,404 kg (2,078-3,095 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>80.5</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>3.8</td>
<td>0.69</td>
<td>0.22</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.

N/A = Not Available