DIESEL GENERATING SET  240/120V - 60 Hz - Single Phase

<table>
<thead>
<tr>
<th>MODEL</th>
<th>APD-EPAM40S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Pf. 1</td>
<td></td>
</tr>
<tr>
<td>Standby</td>
<td>kVA</td>
</tr>
<tr>
<td>kW</td>
<td>40</td>
</tr>
<tr>
<td>Prime</td>
<td>kVA</td>
</tr>
<tr>
<td>kW</td>
<td>36</td>
</tr>
</tbody>
</table>

Standby: Continuous running at variable load for duration of an emergency. No overload is permitted on these ratings. In accordance with ISO 3046.
Prime: Continuous running at variable load for unlimited periods with 10% overload available for 1 hour in any 12 hour period. In accordance with ISO 8528, ISO 3046.

- High quality, reliable and complete power unit
- Compact design
- Easy start and maintenance possibility
- Every generating set is subject to a comprehensive test program which includes full load testing and checking and providing of all control and safety shut down functions testing
- Full engineered with a wide range of options and accessories: Canopy, sound proof canopy and on road trailer

ENGINE

- Heavy duty Mitsubishi diesel engine
- Four stroke, water cooled, turbocharged
- Direct injection fuel system
- Electric governor system
- Replaceable fuel filter, oil filter and dry element air filter
- Cooling radiator and fan
- Starter battery (with lead acid) including Rack and Cables
- Flexible fuel connection hoses and manual oil sump drain valve
- Industrial capacity exhaust silencer and steel bellows
- Jacket water heater (at automatic models)
- Operation manuals and circuit diagram documents

ALTERNATOR

- Brushless, single bearing system, flexible disc, 4 poles
- Insulation class H
- Standard degree of protection IP21 (*IP22/IP23 is avail.)
- Self-exciting and self-regulating
- Impregnation with tropicalised epoxy varnish
- Solid state Automatic Voltage Regulator
- Stator winding with 2/3 pitch for improved harmonics
### ENGINE

<table>
<thead>
<tr>
<th>MITSUBISHI</th>
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</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td>S4S-DT</td>
</tr>
<tr>
<td><strong>EPA Certification</strong></td>
<td>INTERIM TIER 4</td>
</tr>
<tr>
<td><strong>Engine Power Output at rated rpm</strong></td>
<td></td>
</tr>
<tr>
<td>BHP</td>
<td>kWm</td>
</tr>
<tr>
<td>61.9</td>
<td>46.2</td>
</tr>
<tr>
<td><strong>Aspiration and Cooling</strong></td>
<td>Turbocharged</td>
</tr>
<tr>
<td><strong>Total Displacement</strong></td>
<td>Cu.in.</td>
</tr>
<tr>
<td>203.27</td>
<td>3.331</td>
</tr>
<tr>
<td><strong>No. of Cylinders and Build</strong></td>
<td>4-Inline</td>
</tr>
<tr>
<td><strong>Engine Speed</strong></td>
<td>rpm</td>
</tr>
<tr>
<td><strong>Bore and Stroke</strong></td>
<td>inches</td>
</tr>
<tr>
<td>3.70x4.72</td>
<td>94x120</td>
</tr>
<tr>
<td><strong>Compression Ratio</strong></td>
<td>17:1</td>
</tr>
<tr>
<td><strong>Governor</strong></td>
<td>Electric</td>
</tr>
<tr>
<td><strong>Starter Motor Voltage</strong></td>
<td>12 V</td>
</tr>
<tr>
<td><strong>Fuel Consumption @ 100 % load</strong></td>
<td>gal/hr</td>
</tr>
<tr>
<td><strong>Fuel Consumption @ 75% load</strong></td>
<td>2.42</td>
</tr>
<tr>
<td><strong>Fuel Consumption @ 50% load</strong></td>
<td>1.61</td>
</tr>
<tr>
<td><strong>Fuel Consumption @ 25% load</strong></td>
<td>0.81</td>
</tr>
<tr>
<td><strong>Fuel Tank Capacity</strong></td>
<td>gal</td>
</tr>
<tr>
<td>21.16</td>
<td>80.09</td>
</tr>
<tr>
<td><strong>Oil Capacity</strong></td>
<td>gal</td>
</tr>
<tr>
<td>2.64</td>
<td>10</td>
</tr>
<tr>
<td><strong>Coolant Capacity</strong></td>
<td>gal</td>
</tr>
<tr>
<td>1.45</td>
<td>5.5</td>
</tr>
<tr>
<td><strong>Radiator Cooling Air</strong></td>
<td>cfm</td>
</tr>
<tr>
<td>2295.4</td>
<td>65</td>
</tr>
<tr>
<td><strong>Air Intake – Engine</strong></td>
<td>cfm</td>
</tr>
<tr>
<td>123.6</td>
<td>3.5</td>
</tr>
<tr>
<td><strong>Exhaust Gas Flow</strong></td>
<td>cfm</td>
</tr>
<tr>
<td>339.02</td>
<td>9.6</td>
</tr>
<tr>
<td><strong>Standard operating temp degree of radiator</strong></td>
<td>°C</td>
</tr>
<tr>
<td><strong>Sound Level @1 meter / @ 7 meter</strong></td>
<td>dB</td>
</tr>
</tbody>
</table>

### ALTERNATOR

<table>
<thead>
<tr>
<th>Marathon-MPS-38-4</th>
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</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td>Marathon-MPS-38-4</td>
</tr>
<tr>
<td><strong>Size(mm)</strong></td>
<td>640x464x710</td>
</tr>
<tr>
<td><strong>Design</strong></td>
<td>Brushless single bearing, revolving field</td>
</tr>
<tr>
<td><strong>Stator</strong></td>
<td>2/3 pitch</td>
</tr>
<tr>
<td><strong>Rotor</strong></td>
<td>Single bearing, flexible disc</td>
</tr>
<tr>
<td><strong>Insulation System</strong></td>
<td>Class H</td>
</tr>
<tr>
<td><strong>Standard Temperature Rise</strong></td>
<td>125 °C Prime / 150 °C Stand by</td>
</tr>
<tr>
<td><strong>Exciter Type</strong></td>
<td>Self Excited(PMG excitation is optional)</td>
</tr>
<tr>
<td><strong>Phase Rotation</strong></td>
<td>A (U), B (V), C (W)</td>
</tr>
<tr>
<td><strong>Alternator Cooling</strong></td>
<td>Direct drive centrifugal blower fan</td>
</tr>
<tr>
<td><strong>AC Waveform Total Harmonic Distortion</strong></td>
<td>No load &lt; 1.5%. Non distorting balanced linear load &lt; 5%</td>
</tr>
<tr>
<td><strong>Telephone Influence Factor (TIF)</strong></td>
<td>&lt;50 per NEMA MG1-22.43</td>
</tr>
<tr>
<td><strong>Telephone Harmonic Factor (THF)</strong></td>
<td>&lt;2%</td>
</tr>
</tbody>
</table>
CONTROL SYSTEM

Control supervision and protection panel is mounted on the genset base frame. The control panel is equipped as follows:

1. Auto Mains Failure Control Panel
   Panel equipments:
   ✓ Control with AMF module
   ✓ Static battery charger
   ✓ Emergency stop push button

   a) Generating set control module DSE 7320 features:
      ✓ The module is used to monitor a mains supply and starts and stops a standby generating set
      ✓ Micro-processor based design
      ✓ Automatic control of mains and generator contactors
      ✓ Monitors engine performance and AC power output
      ✓ LED alarm indication
      ✓ Front panel configuration of timers and alarm trip points
      ✓ Easy push button control
      STOP/RESET - MANUAL – TEST - AUTO – MUTE ALARM – START

   b) Metering via LED display:
      ✓ Generator Volts (L-L / L-N)
      ✓ Engine oil pressure (PSI-Bar)
      ✓ Generator Ampere (L1,L2,L3)
      ✓ Engine temperature (°C & °F)
      ✓ Generator Frequency (Hz)
      ✓ Plant battery volts
      ✓ Engine hours run
      ✓ Mains Volts (Ph-Ph/Ph-N)
      ✓ Generator kVA, kWh
      ✓ Generator kW as % of rated kW setting
      ✓ Generator Cos (σ)

   c) Alarms:
      ✓ Over and Under Speed
      ✓ Low and High Battery Volt.
      ✓ Start and Stop Failure
      ✓ Charge fail
      ✓ Over Current
      ✓ Under / Over Generator Voltage
      ✓ Low Oil Pressure
      ✓ Emergency stop
      ✓ High engine temperature
      ✓ kW overload
      ✓ Unbalanced load
      ✓ Independent earth fault trip

   d) LED Indications
      Four configurable LED’s like:
      ✓ Mains available
      ✓ Generator available
      ✓ Mains on load
      ✓ Generator on load

2. Power Outlet Terminal Board Mounted on the Gen-set Base frame

OPTIONAL EQUIPMENTS

Diesel Engine
✓ Oil heater

Alternator
✓ 3/4 Pole Output Circuit Breaker
✓ Anti-condensation Heater

Panel
✓ Charge ammeter
✓ Transfer Switch 3 Pole
✓ Transfer Switch 4 Pole
✓ Earth Fault, single set

Accessories
✓ Bulk fuel tank
✓ Automatic filling system
✓ Low fuel level alarm
✓ Residential silencer
✓ Enclosure or sound proof canopy
✓ Trailer
✓ Manual oil drain pump
✓ Tool kit for maintenance
✓ Fuel-water separator
THE COMPLETE GEN-SET IS MOUNTED AS WHOLE ON A HEAVY-DUTY FABRICATED, STEEL BASE FRAME
- Anti-vibration pads are fixed between the engine/alternator feet and the base frame
- Base frame design incorporates an integral fuel tank (Up to 750 kVA) NON-UL
- The generating set can be lifted or carefully pushed/pulled by the base frame
- Dial type fuel gauge and drain plug on the fuel tank
- Forklift pockets within base frame (up to 500kVA)

### OPEN TYPE

<table>
<thead>
<tr>
<th>DIMENSIONS (LxWxH)</th>
<th>inches</th>
<th>mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>58.3x27.6x39.4</td>
<td>1480x700x1000</td>
</tr>
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<table>
<thead>
<tr>
<th>DRY WEIGHT</th>
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</thead>
<tbody>
<tr>
<td>Lb.</td>
</tr>
<tr>
<td>Kg</td>
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</tbody>
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### SOUND ATTENUATED TYPE

<table>
<thead>
<tr>
<th>DIMENSIONS (LxWxH)</th>
<th>inches</th>
<th>mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>88.8x38.2x50.2</td>
<td>2255x969x1275</td>
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<table>
<thead>
<tr>
<th>DRY WEIGHT</th>
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<tbody>
<tr>
<td>Lb.</td>
</tr>
<tr>
<td>Kg</td>
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</tbody>
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### CANOPY

- All canopy parts are designed with modular principles
- Without welding assembly
- Doors on each side
- All metal canopy parts are painted by electrostatic polyester powder paint
- Exhaust silencer is protected against environment influences
- Thermally insulated engine exhaust system
- Emergency stop push button is installed outside of the canopy
- Easy lifting and moving
- Easy maintenance and operation