APD1650M

1650 kVA / 1320 kW
POWERED by MITSUBISHI

DIESEL GENERATING SET 400/230 V - 50 Hz – 3 phase

<table>
<thead>
<tr>
<th>MODEL</th>
<th>APD1650M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standby</td>
<td>1650</td>
</tr>
<tr>
<td>Prime</td>
<td>1500</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, checking and provision of all control and safety shut down functions testing
- Fully engineered with a wide range of options and accessories: Canopy, sound proof canopy and on-road trailer

Manufacturer reserves the right to make changes in model, technical specifications, color, equipment and accessories without prior notice.

www.aksapowergen.com
### ENGINE

<table>
<thead>
<tr>
<th>MITSUBISHI</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td>S12R-PTAA2</td>
</tr>
<tr>
<td><strong>Engine Power Output at rated rpm</strong></td>
<td>kWm: 1441, HP: 1932</td>
</tr>
<tr>
<td><strong>Aspiration and Cooling</strong></td>
<td>Turbocharged &amp; air to air cooler</td>
</tr>
<tr>
<td><strong>Total Displacement</strong></td>
<td>Litre: 49.03</td>
</tr>
<tr>
<td><strong>No. of Cylinders and Build</strong></td>
<td>12V</td>
</tr>
<tr>
<td><strong>Engine Speed</strong></td>
<td>Rpm: 1500</td>
</tr>
<tr>
<td><strong>Bore and Stroke</strong></td>
<td>mmxmm: 170x180</td>
</tr>
<tr>
<td><strong>Compression Ratio</strong></td>
<td>13.5:1</td>
</tr>
<tr>
<td><strong>Governor</strong></td>
<td>Electronic</td>
</tr>
<tr>
<td><strong>Fuel Consumption at full load</strong></td>
<td>L/hr: 308</td>
</tr>
<tr>
<td><strong>Fuel Tank Capacity</strong></td>
<td>Litre: N/A</td>
</tr>
<tr>
<td><strong>Oil Capacity</strong></td>
<td>Litre: 180</td>
</tr>
<tr>
<td><strong>Coolant Capacity</strong></td>
<td>Litre: 317</td>
</tr>
<tr>
<td><strong>Radiator Cooling Air</strong></td>
<td>m³/min: 1800</td>
</tr>
<tr>
<td><strong>Air Intake – Engine</strong></td>
<td>m³/min: 120</td>
</tr>
<tr>
<td><strong>Exhaust Gas Flow</strong></td>
<td>m³/min: 318</td>
</tr>
</tbody>
</table>

- Heavy duty Mitsubishi diesel engine
- Four stroke, water cooled, turbocharged & intercooled
- Direct injection fuel system
- Electronic Governor system
- 12/24 V D.C. starter and charge alternator
- 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

<table>
<thead>
<tr>
<th>Design</th>
<th>Brushless single bearing, revolving field</th>
</tr>
</thead>
<tbody>
<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 - 163°C Continuous</td>
</tr>
<tr>
<td><strong>Exciter Type</strong></td>
<td>Self Excited</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>

- 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
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 Genset 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
- Fuel-water separator filter
- Low fuel level alarm
- Residential silencer
- Enclosure or sound proof canopy
- Trailer
- Manual oil drain pump
- Tool kit for maintenance
CHASSIS

- 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)
- 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 500 kVA)

DIMENSIONS

<table>
<thead>
<tr>
<th></th>
<th>OPEN TYPE</th>
<th>SOUND ATTENUATED TYPE</th>
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<tbody>
<tr>
<td>DIMENSIONS (LxWxH) mm</td>
<td>4980x2192x3022</td>
<td>12192x2438x2896 (Container)</td>
</tr>
<tr>
<td>DRY WEIGHT kg</td>
<td>10450</td>
<td>21500</td>
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CANOPY

- All canopy parts are designed with modular principles
- Without welding assembly
- Doors on each side
- 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

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