APD22C

DIESEL GENERATING SET  400/230 V - 50 Hz-3 Phase

<table>
<thead>
<tr>
<th>MODEL</th>
<th>APD22C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Pf. 0.8</td>
<td>kVA</td>
</tr>
<tr>
<td>Standby</td>
<td>22</td>
</tr>
<tr>
<td>Prime</td>
<td>20</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.

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### ENGINE

<table>
<thead>
<tr>
<th><strong>CUMMINS</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td>4B3.9G11</td>
</tr>
<tr>
<td><strong>Engine Power Output</strong></td>
<td>kWm: 22</td>
</tr>
<tr>
<td><strong>Aspiration and Cooling</strong></td>
<td>Hp: 29</td>
</tr>
<tr>
<td><strong>Total Displacement</strong></td>
<td>L: 3.9</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: 1500</td>
</tr>
<tr>
<td><strong>Bore and Stroke</strong></td>
<td>mmxmm: 102x120</td>
</tr>
<tr>
<td><strong>Compression Ratio</strong></td>
<td>18:1</td>
</tr>
<tr>
<td><strong>Governor</strong></td>
<td>Mechanical</td>
</tr>
<tr>
<td><strong>Fuel Consumption at full load</strong></td>
<td>L/hr: 5.7</td>
</tr>
<tr>
<td><strong>Fuel Tank Capacity</strong></td>
<td>L: 180</td>
</tr>
<tr>
<td><strong>Fuel Capacity</strong></td>
<td>L: 10.9</td>
</tr>
<tr>
<td><strong>Coolant Capacity</strong></td>
<td>L: 19.2</td>
</tr>
<tr>
<td><strong>Radiator Cooling Air</strong></td>
<td>m³/min: 120</td>
</tr>
<tr>
<td><strong>Air Intake – Engine</strong></td>
<td>m³/min: 1.97</td>
</tr>
<tr>
<td><strong>Exhaust Gas Flow</strong></td>
<td>m³/min: 4.47</td>
</tr>
</tbody>
</table>

- Heavy duty Cummins diesel engine
- Four stroke, water cooled, natural
- Direct injection fuel system
- Mechanical 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><strong>Design</strong></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 available,*)
- 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 DSE6120 features:
      - The module is used to monitor main supply and starts and stops of a standby generating set
      - Micro-processor based design
      - Automatic control of main and generator contactors
      - Monitors engine performance and AC power output LED alarm indication
      - Front panel configuration of timers and alarm trip points
      - 4 configurable analogue/digital inputs, 8 configurable digital inputs
      - 6 configurable DC outputs
      - Easy push button control
      - STOP/RESET - MANUAL - AUTO - TEST – START
   b) Metering via LCD display:
      - Generator Volts (L-L / L-N)   Generator kVA
      - Engine oil pressure (PSI-Bar)  Generator kW
      - Engine temperature (°C & °F)  Generator Cos (σ)
      - Generator Frequency (Hz)
      - Plant battery volts
      - Engine hours run
      - Mains Volts (Ph-Ph/Ph-N)
   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
   d) LED indications
      - 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 3Pole
- 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 1000 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>OPEN TYPE</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DIMENSIONS (LxWxH)</td>
<td>mm</td>
<td>2015x950x1384</td>
</tr>
<tr>
<td>DRY WEIGHT</td>
<td>kg</td>
<td>800</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOUND ATTENUATED TYPE</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DIMENSIONS (LxWxH)</td>
<td>mm</td>
<td>2282x1008x1532</td>
</tr>
<tr>
<td>DRY WEIGHT</td>
<td>kg</td>
<td>1020</td>
</tr>
</tbody>
</table>

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

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