AP1650

**Power Pf. 0.8**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>Standby</th>
<th>Prime</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>kVA</td>
<td>kVA</td>
</tr>
<tr>
<td></td>
<td>kW</td>
<td>kW</td>
</tr>
<tr>
<td>Standby</td>
<td>1320</td>
<td>1500</td>
</tr>
<tr>
<td>Prime</td>
<td>1650</td>
<td>1200</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.
### ENGINE

<table>
<thead>
<tr>
<th>PERKINS</th>
<th>4012-46TAG2A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>PERKINS</td>
</tr>
<tr>
<td>Engine Power Output at rated rpm kWm</td>
<td>1459</td>
</tr>
<tr>
<td>HP</td>
<td>1956</td>
</tr>
<tr>
<td>Aspiration and Cooling</td>
<td>Turbocharged</td>
</tr>
<tr>
<td>Total Displacement Litre</td>
<td>45.842</td>
</tr>
<tr>
<td>No. of Cylinders and Build</td>
<td>12; Vee 60°</td>
</tr>
<tr>
<td>Engine Speed rpm</td>
<td>1500</td>
</tr>
<tr>
<td>Bore and Stroke mm x mm</td>
<td>160 x 190</td>
</tr>
<tr>
<td>Compression Ratio</td>
<td>13:1</td>
</tr>
<tr>
<td>Governor</td>
<td>Electronic</td>
</tr>
<tr>
<td>Fuel Consumption at full load L/hr</td>
<td>310</td>
</tr>
<tr>
<td>Fuel Tank Capacity Litre</td>
<td>open: N/A / canopy:1900</td>
</tr>
<tr>
<td>Oil Capacity Litre</td>
<td>177</td>
</tr>
<tr>
<td>Coolant Capacity Litre</td>
<td>195.7</td>
</tr>
<tr>
<td>Radiator Cooling Air m³/min</td>
<td>1944</td>
</tr>
<tr>
<td>Air Intake – Engine m³/min</td>
<td>128</td>
</tr>
<tr>
<td>Exhaust Gas Flow m³/min</td>
<td>320</td>
</tr>
</tbody>
</table>

- Heavy duty Perkins 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>Stator</td>
<td>2/3 pitch</td>
</tr>
<tr>
<td>Rotor</td>
<td>Single bearing, flexible disc</td>
</tr>
<tr>
<td>Insulation System</td>
<td>Class H</td>
</tr>
<tr>
<td>Standard Temperature Rise</td>
<td>125 - 163°C Continuous</td>
</tr>
<tr>
<td>Exciter Type</td>
<td>Self Excited</td>
</tr>
<tr>
<td>Phase Rotation</td>
<td>A (U), B (V), C (W)</td>
</tr>
<tr>
<td>Alternator Cooling</td>
<td>Direct drive centrifugal blower fan</td>
</tr>
<tr>
<td>AC Waveform Total Harmonic Distortion</td>
<td>No load &lt; 1.5%. Non distorting balanced linear load &lt; 5%</td>
</tr>
<tr>
<td>Telephone Influence Factor (TIF)</td>
<td>&lt;50 per NEMA MG1-22.43</td>
</tr>
<tr>
<td>Telephone Harmonic Factor (THF)</td>
<td>&lt;2%</td>
</tr>
</tbody>
</table>

- Brushless, single bearing system, flexible disc, 4 poles
- Impregnation with tropicalised epoxy varnish
- Insulation class H
- Standard degree of protection IP21 (*IP22/IP23 is available. *)
- Self-exiting and self-regulating
- 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 500kVA)

**DIMENSIONS**

<table>
<thead>
<tr>
<th></th>
<th>OPEN TYPE</th>
<th>SOUND ATTENUATED TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIMENSIONS (LxWxH)</td>
<td>mm</td>
<td>mm</td>
</tr>
<tr>
<td>DRY WEIGHT</td>
<td>kg</td>
<td>kg</td>
</tr>
<tr>
<td>4920<em>2120</em>2410</td>
<td>10200</td>
<td>9000<em>2270</em>(2550+930)</td>
</tr>
<tr>
<td>14300</td>
<td></td>
<td></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