AD209-6

209kVA / 167.2kW
POWERED by Doosan

DIESEL GENERATING SET  480/277V, 440/254V, 380/220V, 220/127V- 60 Hz-3 Phase

<table>
<thead>
<tr>
<th>MODEL</th>
<th>AD209-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Pf. 0.8</td>
<td>kVA</td>
</tr>
<tr>
<td>Standby</td>
<td>209</td>
</tr>
<tr>
<td>Prime</td>
<td>190</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><strong>DOOSAN</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td>P086TI-1</td>
</tr>
<tr>
<td><strong>Engine Power Output at rated rpm</strong></td>
<td></td>
</tr>
<tr>
<td>kWm</td>
<td>191</td>
</tr>
<tr>
<td>HP</td>
<td>256</td>
</tr>
<tr>
<td><strong>Aspiration and Cooling</strong></td>
<td>Turbo charged &amp; intercooled</td>
</tr>
<tr>
<td><strong>Total Displacement</strong></td>
<td>8.071</td>
</tr>
<tr>
<td><strong>No. of Cylinders and Build</strong></td>
<td>6-Cylinder, in-line</td>
</tr>
<tr>
<td><strong>Engine Speed</strong></td>
<td>1800</td>
</tr>
<tr>
<td><strong>Bore and Stroke</strong></td>
<td>111 x 139</td>
</tr>
<tr>
<td><strong>Compression Ratio</strong></td>
<td>16.4:1</td>
</tr>
<tr>
<td><strong>Governor</strong></td>
<td>Electric</td>
</tr>
<tr>
<td><strong>Fuel Consumption at full load</strong></td>
<td>42.4</td>
</tr>
<tr>
<td><strong>Fuel Tank Capacity</strong></td>
<td>Open: 380/Canopy: 380</td>
</tr>
<tr>
<td><strong>Oil Capacity</strong></td>
<td>15.5</td>
</tr>
<tr>
<td><strong>Coolant Capacity</strong></td>
<td>44</td>
</tr>
<tr>
<td><strong>Radiator Cooling Air</strong></td>
<td>224</td>
</tr>
<tr>
<td><strong>Air Intake – Engine</strong></td>
<td>21.53</td>
</tr>
<tr>
<td><strong>Exhaust Gas Flow</strong></td>
<td>38.8</td>
</tr>
</tbody>
</table>

- Heavy duty DOOSAN diesel engine
- Four stroke, water cooled, Turbo charged
- Direct injection fuel system
- Electric 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

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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 DSE6020 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, 6 configurable digital inputs
      ✓ 4 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
      ✓ Generator Ampere (L1,L2,L3) Generator Cos (σ)
      ✓ Engine temperature (°C & °F)
      ✓ 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

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 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>OPEN TYPE</th>
<th></th>
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<tbody>
<tr>
<td>DIMENSIONS (LxWxH) mm</td>
<td>2690x1150x1620</td>
</tr>
<tr>
<td>DRY WEIGHT kg</td>
<td>1800</td>
</tr>
<tr>
<td>DIMENSIONS (LxWxH) mm</td>
<td>3400x1220x1940</td>
</tr>
<tr>
<td>DRY WEIGHT kg</td>
<td>2175</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