

**AKSA Power Generation** has been producing industrial generator sets with an innovative compact design and excellence in quality for over 30 years. AKSA has been providing reliable power through three main production plants and over 15 branch offices worldwide.



**General Characteristics**

|                     |                            |                        |                              |
|---------------------|----------------------------|------------------------|------------------------------|
| Model Name          | <b>AP59-6</b>              | Frequency / PF         | <b>60Hz, 1800 rpm, 0.8pf</b> |
| Engine Make & Model | <b>Perkins 1103A-33TG1</b> | Alternator Make        | <b>Stamford</b>              |
| Control Panel Model | <b>DSE 6020</b>            | Base Frame / Enclosure | <b>AKSA AK21</b>             |

**Genset Rating – 60Hz, 1800rpm, 0.8pf**

| Engine      | Alternator | Voltage    | Standby Power | Prime Power | Standby Current |
|-------------|------------|------------|---------------|-------------|-----------------|
| 1103A-33TG1 | PI144K     | 480 / 277V | 59kVA         | 53kVA       | 70 A            |
|             | UCI224D    | 380 / 222V | 59kVA         | 53kVA       | 89 A            |
|             | UCI224D    | 220 / 127V | 59kVA         | 53kVA       | 154 A           |
|             | UCI224D    | 208 / 120V | 59kVA         | 53kVA       | 163 A           |

Stand-by Power (Maximum): Power available at variable load in the event of main power network failure. No over load is permitted.  
 Prime Power: Power available at variable load in lieu of a main power network. Overload of 10% is permitted for 1 hour in every 12 hours of operation.  
 The above ratings represent the engine performance capabilities to conditions specified in accordance with ISO 8528/5 & ISO3046.  
**Derating may be required for conditions outside of the test conditions.**

**Codes & Standards**

The Generator set is designed and manufactured in a facility certified to **ISO9001** standards.

The Generator set is designed and manufactured in a facility certified to **ISO14001:2015** standards.

**AKSA Power Generation** provides **single source responsibility** for the generator set & accessories.

The generator set, with its components, are **prototype tested** and **production tested**



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**Engine Data**

|                                  |                         |
|----------------------------------|-------------------------|
| Manufacturer                     | Perkins                 |
| Model                            | 1103A-33TG1             |
| Displacement & Cylinders         | 3.3 L / 3 Cylinders     |
| Engine Speed                     | 1800rpm                 |
| Engine Standby Power             | 53.9 Kw                 |
| Engine Prime Power               | 48.8 kW                 |
| Aspiration                       | Turbocharged            |
| Compression Ratio                | 17.25 : 1               |
| Bore / Stroke                    | 105 mm / 127 mm         |
| Break Mean Effective Pressure    | 1124 kPa                |
| Engine Coolant Flow              | 151 l/min               |
| Combustion Air Flow              | 3.9 m <sup>3</sup> /min |
| Exhaust Gas Flow                 | 9.5 m <sup>3</sup> /min |
| Exhaust Gas Temperature          | 551 °C                  |
| Overall Thermal Efficiency       | 39.1 %                  |
| Speed Variation at Constant Load | ± 0.75 %                |

**Fuel System**

|                          |                   |
|--------------------------|-------------------|
| Type of Injection        | Direct Injection  |
| Fuel Injection Pump      | Rotary            |
| Nozzle Opening Pressure  | 29 Mpa            |
| Fuel Lift Pump Flow/hour | 120-150 liters/hr |

**Fuel Consumption**

|                      |          |
|----------------------|----------|
| Standby Power (110%) | 14.3 L/h |
| Prime Power (100%)   | 12.9 L/h |
| Prime Power (75%)    | 9.9 L/h  |
| Prime Power (50%)    | 7.1 L/h  |

**Electric System**

|                              |                 |
|------------------------------|-----------------|
| Engine Cranking Motor        | 12V             |
| Engine Battery Charge System | Negative Ground |
| Battery Qty, Rating, CCA     | 1 x 54Ah        |

**Cooling System**

|                               |                      |
|-------------------------------|----------------------|
| Radiator Face Area            | 0.276 m <sup>2</sup> |
| Fan Number of Plates/Material | 7 / Composite        |
| Total System Capacity         | 10.2 L               |
| Max Top Tank Temperature      | 110 °C               |
| Thermostat Range              | 82 – 93 °C           |

**Exhaust System**

|                       |        |
|-----------------------|--------|
| Maximum Back Pressure | 10 kPa |
| Exhaust Outlet Size   | 56 mm  |

**Lubrication System**

|   |               |
|---|---------------|
| Total System Capacity                                   | 8.3 L         |
| Minimum Capacity  | 6.2 L         |
| Max Oil Temp  | 125 °C        |
| Oil Pressure – relief valve opens                       | 415 – 470 kPa |
| Oil Consumption at full load as a % of fuel consumption | 0.15 %        |

**Energy Balance**

|                                |         |
|--------------------------------|---------|
| Energy in fuel                 | 142 kW  |
| Energy in power output – gross | 55.6 kW |
| Energy to cooling fan          | 1.7 kW  |
| Energy to coolant and oil      | 34 kW   |
| Energy to exhaust              | 43 kW   |



**Alternator Data**

|                        |                         |
|------------------------|-------------------------|
| Manufacturer           | Stamford                |
| Standards              | BS EN 60034             |
| Control System         | Self Excited            |
| A.V.R.                 | AS480 / SX460           |
| Voltage Regulation     | ± 1 %                   |
| Insulation System      | Class H                 |
| Protection             | IP21 / IP23             |
| Rated Power Factor     | 0.8                     |
| Stator Winding         | Double Layer Concentric |
| Winding Pitch          | Two Thirds              |
| Winding Leads          | 12                      |
| Telephone Interference | THF < 2 %               |
| Waveform Distortion    | No Load < 1.5 %         |
| Maximum Over speed     | 2250 rev/min            |

**Controller Data**

|              |                            |
|--------------|----------------------------|
| Manufacturer | DSE                        |
| Model        | 6020                       |
| Type         | Auto Mains Failure Control |

**Controller Features & Benefits**

- Microprocessor controlled
- License free PC Software
- IP65 rating offers increased resistance to water ingress
- Front Panel Editing
- Event log
- Back-lit icon LCD display
- LED and LCD alarm indication
- Power save mode
- PC and front panel configuration
- Configurable timers and alarms

**Battery Charger & Electrical System Data**

|                          |                 |
|--------------------------|-----------------|
| Manufacturer             | AKSA            |
| Model                    | SmartGen BAC06A |
| Input Voltage            | 100V ~ 250V AC  |
| Output Voltage / Current | 13,8V DC / 6A   |

- Alternative configuration
- Three phase generator monitoring
- Current monitoring and protection
- Power monitoring (kW, kVA, kVAr)
- Reverse power (kW & kVAr) protection
- Three phase utility monitoring

**Jacket Water Heater Data**

|               |                            |
|---------------|----------------------------|
| Manufacturer  | AKSA                       |
| Model         | HTR1000W 100-120F          |
| Input Voltage | 1 ph, Based on gen voltage |
| Power         | 1000W                      |

- Test feature
- Battery voltage monitoring
- Hours counter
- Comprehensive warning or shutdown on fault condition

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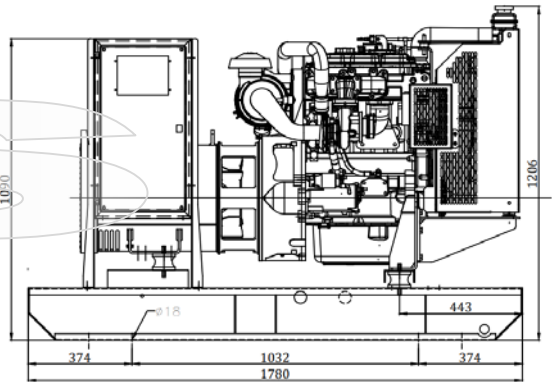
**Enclosure Features**



- ✓ Heavy Duty Steel Structure
- ✓ E-Stop on Enclosure
- ✓ Control Panel Eliminated from Engine Vibrations
- ✓ Control Panel Window
- ✓ Plastic Covered Corrosion Resistant Locks & Hinges
- ✓ Internally Mounted Exhaust System with Rain Cap
- ✓ Coolant Fill Cap
- ✓ Enclosure Top Lifting Hooks
- ✓ Base Fuel Tank
- ✓ Easy Access for Maintenance
- ✓ Sound Absorb High Density Foam

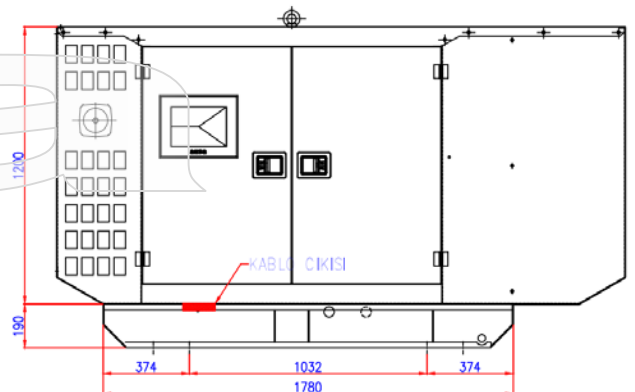
**Open Skid Gen-Set Dimensions**

|               |         |
|---------------|---------|
| Length        | 1780 mm |
| Width         | 950 mm  |
| Height        | 1206 mm |
| Dry Weight    | 850 kg  |
| Tank Capacity | 100 L   |



**Enclosed Gen-Set Dimensions**

|                           |          |
|---------------------------|----------|
| Length                    | 2466 mm  |
| Width                     | 1010 mm  |
| Height                    | 1461 mm  |
| Dry Weight                | 1030 kg  |
| Tank Capacity             | 100 L    |
| Sound Pressure @ 7 meters | 70 dB(A) |



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**Standard Features & Accessories**

- ✓ Heavy Duty Steel Base Frame
- ✓ Integral Fuel Tank, Single Wall
- ✓ Fuel Drain Plug
- ✓ Control Panel Window
- ✓ Engine Jacket Water Heater
- ✓ Battery and Battery Rack
- ✓ Battery Charger
- ✓ Radiator fill cap on enclosure
- ✓ Anti Vibration Pads between Engine/Alternator & Base Frame
- ✓ Residential Grade Silencer Inside Enclosure
- ✓ Industrial Grade Silencer Set for Open Skid Sets
- ✓ Sound Absorb Foam for Enclosure
- ✓ Air Inlet & Outlet Rodent Guards
- ✓ Oil Drain Valve
- ✓ Coolant Drain Valve
- ✓ Flex Fuel Lines
- ✓ Air Filter Restriction Gauge
- ✓ Engine Manifold Cover
- ✓ Turbocharger Cover
- ✓ Protection Covers for Rotating Parts
- ✓ Exhaust Insulation Cover
- ✓ Control Panel Window
- ✓ Operations Manual
- ✓ 24 Months / 2000 hours Limited Standby Warranty

**Optional Accessories**

- Main Line CB (3 / 4 Poles)
- EBS / PMG
- Anti-condensation Heater
- Single wall fuel tank – 24hours capacity
- Double wall fuel tank
- Fuel Level Display & Alarm on Controller
- Low / High Fuel Alarms
- Fuel Water Separator Filter
- Auto Fuel Fill Control System
- Oil Temperature Display on Controller
- Manual Speed Adjust Rheostat
- Manual Voltage Adjust Rheostat
- Remote Annunciator Panel
- Remote Control & Monitoring Panel
- Advanced SMS Messaging
- Control Panel Heater
- Battery Disconnect Switch
- Battery Heater
- 10A Battery Charger
- Battery Charge Ammeter
- Tool Kit for Maintenance
- Power Plug Outlet Kit
- Automatic Transfer Panel (ATS) – Contactor Design
- Automatic Transfer Panel (ATS) – Changeover Design

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