KAWASAKI HEAVY INDUSTRIES, LTD.
An Integrated Engineering Manufacturer Spreading It’s Interests by Land, Sea and Air.

Kawasaki Heavy Industries, established in 1878, has a history of more than 125 years of manufacturing integrated engineered products. It's business has expanded to include the manufacturing of ships, railway rolling stock, aircraft, gas turbines, many types of industrial plants, steel structures, general machinery and motorcycles. It's products are found on the land, in the sea and in the air. By constant attention to production efficiency and through exclusive technologies developed internally, we are continuing to develop additional technologies related to transportation innovations, national land and marine resources development, space exploration development, environmental controls, new energy development and biotechnology development. The range of our technologies is greatly expanding to encompass large, diverse projects.
Kawasaki Gas Turbine places importance on "Efficient Energy Use", "Eco-friendly" and "Reliable Product Care for Total Life Cycle" as a philosophy of our products.

To enhance this philosophy, we have introduced a new title for our products..."GREEN Gas Turbines".

"Get Reliable Eco-friendly Energy Now"

INDEX

Introduction .......................................................... 1
History and Order Record of Kawasaki Gas Turbines ........................................ 2
Standby Model Introduction ........................................... 3
Structure of Gas Turbine / Comparison of Gas Turbine & Reciprocating Engine ............. 4
Advantages of Gas Turbines ........................................... 5
Standby for Internet Data Centers (IDC) ........................................ 6
Standby Model (GPS Series) ........................................... 7
Mobile / Trailer Model (MGP / TGP Series) ........................................ 8
ISO 9001 / ISO14001 Certified

The Gas Turbine Division is located in Akashi Works.It designs and manufactures the Gas Turbine Co-generation System, and is certified for ISO 9001, the international standard of quality assurance, and ISO 14001 the international standard for environmental management.

History and Order Record of Kawasaki Gas Turbines

History

1943 Completed the first Gas Turbine engine for aircrafts in Japan
1952 Started overhauling jet engines
1972 Started development of Industrial Gas Turbine
1974 Completed first S1A-01 type : 200kW Gas Turbine
1977 1,000kW GPS1250 Gas Turbine introduced
1979 150kW MGP200 Mobile Gas Turbine introduced
1980 600kW GPS750 Gas Turbine delivered
1981 2,000kW GPS2500 Gas Turbine delivered
1984 First Kawasaki Gas Turbine Co-generation system 2x1.0 MW delivered
1985 Completed delivery of 1,000th Gas Turbine Generator Sets
1988 1.5 MW M1A-13 type Gas Turbine introduced
1993 5.5 MW M7A-01 type Gas Turbine introduced
1998 Overseas sales and service affiliates were established in the U.S., Germany and Malaysia
1999 6.5 MW M7A-02 type Gas Turbine introduced
2000 18 MW L20A Gas Turbine introduced
2001 Akashi Works NO.4 Power Plant GPC180D, 17.6 MW commercial start-up
2003 4,000kW GPS5000 Gas Turbine introduced
2005 4,800kW GPS6000 Gas Turbine introduced
2006 7.7 MW class M7A-03 type Gas Turbine introduced
2007 Received the 100th Order of the M7A Series
2009 15ppm M7A-03D type Gas Turbine introduced
2010 1.7 MW class M1A-17 type Gas Turbine introduced

Accumulated number of orders received

- Accumulated number of orders received
**Standby Model Introduction**

**Superior Features of Kawasaki Standby Gas Turbine Generators**

Kawasaki has installed over 7,000 units rated from 200kVA to 6,000kVA all over the world. The reliability of Kawasaki's Stand-by Gas Turbine has allowed Kawasaki to install them in Internet Data Centers, Hospitals and mission critical buildings where uninterrupted power is paramount.

- **High performance, low cost gas turbine solution**
- **Dual fuel capable (Gas and Fuel Oil)**
- **Low noise signature for quiet operations**
- **Low radiated vibration**
- **No cooling water required**
- **High starting reliability and rapid startup**
- **Maintenance simplicity**
- **Space-saving design, and easy transportation and installation (MW footprint)**
- **Clean exhaust contributes to environmental conservation**

**Example of GPS2000 system configuration for indoor installation**

**Structure of Gas Turbine**

**High-performance, single-shaft Gas Turbine serves as the prime mover**

**- Reliability**

Kawasaki standby generator sets achieve 99.96% of start up reliability. Compared to the average diesel engine’s start up reliability of about 95%, Kawasaki standby generator sets reliability is significantly higher. This high reliability is achievable due to the Kawasaki’s superior technology and combustion system in the gas turbine.

A gas turbine is a rotating machine utilizing a continuous combustion process, with each part of this process taking place in separate areas of the gas turbine, i.e., intake, compressor, combustor and turbine. A diesel or gas engine is a reciprocating machine with an intermittent combustion process, and all parts of the process taking place in one area, i.e., the cylinder. This major difference helps to make the gas turbine more reliable.

**Differences in the combustion process between a Gas Turbine and a Diesel Engine/Gas Engine**

- **Continuous combustion, rotating motion**
- **Intermittent combustion, reciprocating motion**

**Comparison of Gas Turbine & Reciprocating Engine**

<table>
<thead>
<tr>
<th>Type</th>
<th>Gas Turbine</th>
<th>Diesel Engine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starting reliability</td>
<td>Over 99%</td>
<td>Around 99%</td>
</tr>
<tr>
<td>Steady state speed fluctuation</td>
<td>+/- 0.3%</td>
<td>+/- 5%</td>
</tr>
<tr>
<td>Starting time</td>
<td>Approx. 35-40sec.</td>
<td>Approx. 10-20 sec.</td>
</tr>
<tr>
<td>Installation space</td>
<td>Small</td>
<td>Large</td>
</tr>
<tr>
<td>Emissions (Diesel oil)</td>
<td>NOx: 120 ppm (O2: 15%) CO: 15 ppm</td>
<td>NOx: 700 ppm (O2: 15%) CO: 500 ppm</td>
</tr>
<tr>
<td>Noise level</td>
<td>85 dB(A) at 1m</td>
<td>105~115 dB(A) at 1m</td>
</tr>
<tr>
<td>Vibration level</td>
<td>10~15 µm</td>
<td>50~60 µm</td>
</tr>
<tr>
<td>Cooling water</td>
<td>Not necessary</td>
<td>Approx. 200l/hr</td>
</tr>
</tbody>
</table>
Advantages of Gas Turbines

-Dual Fuel Capability
Kawasaki standby generator sets are capable of operating on not only liquid fuel but also on natural gas. Because of this feature, gas turbines are much more flexible compared with diesel engines or gas engines. Additionally, Kawasaki Gas Turbines can start up with liquid fuel and then automatically switch to natural gas fuel if available for longer operation. Since gas turbines are capable of operating with dual fuel, they can supply electricity in just about any situation.

-Compact and Light weight
Two advantages of gas turbines are size and weight. The size is less than one sixth and the weight is less than one quarter compared to a reciprocating engine providing the equivalent electrical output, which makes it ideal for rooftop installations, or in areas where space is a premium.

BLACKOUT by natural disaster
There are many places where power supply can not be interrupted. However, natural disasters do occur and cause blackouts. To solve this problem, GAS TURBINE STANDBY GENERATOR SETS are the best solution.

Example 1: Tokyo Area Black out (Aug 14, 2006)
On August 14, 2006, a crane barge crashed into one of the main power lines in Tokyo, causing a blackout that affected 139,000 households.

The Results of Kawasaki Standby Gas Turbine start-up
Object number: 278
Black out: 57
Normal start-up: 57
Start-up failures: 0
Black out at IDC: 30
Normal start-up: 30
Start-up failures: 0
No Black out: 191
Normal start-up: 191
Start-up failures: 0

Example 2: Great Hanshin Earthquake (Jan 17, 1995)
Early morning on January 17, 1995, a magnitude 7.2 earthquake hit the Hanshin area, causing a blackout that hit about 3 million households in the area.

The Results of Kawasaki Standby Gas Turbine start-up
Object number: 141
Black out: 97
Normal start-up: 93
Start-up failures: 4
No Black out: 49
Normal start-up: 49
Start-up failures: 0

By external factor out of Kawasaki’s responsibility.

Example 3: Hurricane (Sep 2, 2008)
On September 2, 2008, hurricane “Ike” hit Houston, TX, USA. Total financial damage caused by Ike was the 3rd largest damage caused by hurricanes in the north Atlantic area. The blackout caused by Ike lasted for 2 weeks, but fortunately the gas supply line was available during the time.

Kawasaki Standby Generator Sets enables you to supply stable electricity to your facility in the disastrous situations mentioned above.

Standby for Internet Data Centers (iDC)

The mission of iDC is 24 hours / 365 days service to customer.
What does iDC demand in a standby power generator?

Demands of iDC facility

- Kawasaki’s Standby Gas Turbine
  - No interruption of electric power [High Reliability and Availability]
  - Stable running of iDC equipment and components [High Quality Electric Power]
  - Easy operation [High Operability and Maintainability]
  - Future expansion in accordance with demand increase [High Expandability]
  - Ultra clean and quiet [Environmental-friendly]

Kawasaki’s Standby Gas Turbines have the ability to meet various iDC facilities’ demands.

Typical Arrangement of iDC Components

Components of iDC Facility
1. Power Receiving
2. Standby Generator
3. UPS
4. PDU
5. Server
6. Air Conditioning
7. Fire Fighting
8. Grounding

The share of Kawasaki Gas Turbine Standby Generator Sets in the Japanese iDC market

Kawasaki’s 90% share of the Japanese iDC market is a result of high reliability and excellent performance of Kawasaki’s standby generator sets. High satisfaction of customers maintains Kawasaki’s leading supplier position. This high approval rating proves the quality of Kawasaki’s standby generator sets.

Kawasaki Standby Gas Turbine

<table>
<thead>
<tr>
<th>kW</th>
<th>kW(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kawasaki</td>
<td>351,000</td>
</tr>
<tr>
<td>Others</td>
<td>30,000</td>
</tr>
<tr>
<td>Total</td>
<td>381,000</td>
</tr>
</tbody>
</table>

Kawasaki 92%
Others 8%
**Standby Model (GPS Series)**

Standby gensets must start and supply power in the event of the loss of power from the utility. These functions depend greatly on the prime-mover of the standby system. Starting and providing power are often more important than financial considerations such as the initial cost of equipment. Kawasaki standby GPS Series are suitable for standby power supply when utility power fails. All models are designed for both automatic and manual operation (start / stop / power supply), and they are equipped with alarm / protection systems.

### Basic Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>GPS750</th>
<th>GPS1250</th>
<th>GPS1500</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Generator set</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Electric output (kW)</em></td>
<td>600</td>
<td>1,000</td>
<td>1,200</td>
</tr>
<tr>
<td><strong>Starting time</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100% (Resistive load)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FreQUENCY Deviation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transient</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within ±4.5% (with 100% block load on and off)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steady state</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within ±0.3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fuel type</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kerosene, Diesel oil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gas turbine</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turbine model</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S2A-01</td>
<td>305</td>
<td>525</td>
<td>620</td>
</tr>
<tr>
<td>M1A-01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M1A-03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Turbine speed (rpm)</strong></td>
<td>31,500</td>
<td>22,000</td>
<td></td>
</tr>
<tr>
<td><strong>Output speed (rpm)</strong></td>
<td>1,500</td>
<td>1,800</td>
<td>(60 Hz)</td>
</tr>
<tr>
<td><strong>Dry weight (kg)</strong></td>
<td>1.48</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>Synthetic oil/Shell/Dipto-500, Mobil jet II, Castrol AERO 5000, DP BP 2380</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lube oil type/band</strong></td>
<td>0.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lube oil capacity (litre)</strong></td>
<td>66</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td><strong>Lube oil consumption</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Alternator</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-phase, open screen-protected, brushless, self-ventilated, synchronous</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Output (kW)</strong></td>
<td>750</td>
<td>1,250</td>
<td>1,500</td>
</tr>
<tr>
<td>2,000 (50 Hz), 1,800 (60 Hz)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Voltage regulation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within ±1.5% (steady state from no-load to full-load, at pf = 0.8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Excitation system</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brushless by A.C. exciter and rotating diodes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Type of batteries</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GT package (indoor type)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length (m)</td>
<td>4.0</td>
<td>4.9</td>
<td>4.9</td>
</tr>
<tr>
<td>Width (m)</td>
<td>1.6</td>
<td>1.7</td>
<td>1.7</td>
</tr>
<tr>
<td>Height (m)</td>
<td>2.1</td>
<td>2.5</td>
<td>2.5</td>
</tr>
<tr>
<td>Weight (ton)</td>
<td>6.8</td>
<td>10.5</td>
<td>11.4</td>
</tr>
<tr>
<td><strong>Noise level at 1m</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From package</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approx. 85 dBa in open air (optional system: 80 ~ 70 dBa)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From exhaust silencer outlet</td>
<td>Approx. 90 dBa (optional system: 85 ~ 65 dBa at 1 m with a secondary silencer)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** *Output: Up to 40 °C of ambient temp., 150 m above sea level*

**Fuel consumption:** At full load, 15 °C, using diesel fuel oil, allowance is 5% Above specifications subject to change without notice.

### Specifications Table

<table>
<thead>
<tr>
<th>Model</th>
<th>1,600</th>
<th>2,000</th>
<th>2,400</th>
<th>3,200</th>
<th>4,000</th>
<th>4,800</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GPS2000</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GPS2500</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GPS3000</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GPS4000</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GPS5000</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GPS6000</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Within 40-sec.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100% (Resistive load)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within ±4.5% (with 100% block load on and off)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within ±0.3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Within ±4.5% (with 100% block load on and off)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Within ±4.0%</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Kerosene, Diesel oil*

---

**Heavy-duty, simple open cycle, single-shaft**

**Within ±1.5% (steady state from no-load to full-load, at pf = 0.8)**

**Brushless by A.C. exciter and rotating diodes**

**3-phase, open screen-protected, brushless, self-ventilated, synchronous**

**Within ±1.5% (steady state from no-load to full-load, at pf = 0.8)**

**Brushless by A.C. exciter and rotating diodes**

**3-phase, open screen-protected, brushless, self-ventilated, synchronous**

**Within ±1.5% (steady state from no-load to full-load, at pf = 0.8)**

**Lead-acid stationary or automotive batteries (Optional: Alkaline Ni-Cd batteries, others)**

**Electrical start with D.C. motors (Optional: Pneumatic start with air turbines)**

**Lead-acid stationary or automotive batteries (Optional: Alkaline Ni-Cd batteries, others)**

**Brushless by A.C. exciter and rotating diodes**

**Electrical start with D.C. motors (Optional: Pneumatic start with air turbines)**

**Lead-acid stationary or automotive batteries (Optional: Alkaline Ni-Cd batteries, others)**

**Approx. 85 dBa in open air (optional system: 80 ~ 70 dBa)**

**Approx. 90 dBa (optional system: 85 ~ 65 dBa at 1 m with a secondary silencer)**
Mobile / Trailer Model ( MGP/TGP Series )

Kawasaki MGP/TGP Series Gas Turbines are mounted on trucks or on trailers for mobile generator sets. The MGP/TGP Series generator sets integrate all necessary equipment including fully automatic operation without the need for external power. Good maneuverability, high durability against vibration and shock, and reliable operation are important for this application. Kawasaki MGP/TGP Series are fully designed to meet such demands.

- Particular Advantages
  1. Developed with vast field experience
     Gas Turbines on trucks or on trailers are susceptible to large vibration and shock when they run on roads. Kawasaki designed industrial trailer mounted gas turbines include the experience and technology from Kawasaki aircraft jet engines which are operated under similar severe environmental conditions.
  2. Low center of gravity and large tumble-down angle
     Due to light weight of gas turbines, the center of gravity of gensets is lower and this makes it possible to have stable maneuverability.
  3. Compact integration
     All necessary equipment is incorporated in the gensets, including the fuel tank, batteries, exhaust silencer, cable reel, etc., with a compact aluminum enclosure. Thus, there is easy maintenance of the gensets.
  4. Black start capability
     It can start up and supply electricity without an external electric power supply, fuel oil, etc.

MGP/TGP Series Specifications

### System Specifications ( Typical )

<table>
<thead>
<tr>
<th>Item</th>
<th>MGP 750</th>
<th>MGP 1000</th>
<th>MGP 1250</th>
<th>MGP 1500</th>
<th>MGP 2000</th>
<th>TGP 2500</th>
<th>TGP 3000</th>
<th>TGP 4000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output (kW)</td>
<td>600</td>
<td>800</td>
<td>1000</td>
<td>1,300</td>
<td>1,600</td>
<td>2,000</td>
<td>2,400</td>
<td>3,200</td>
</tr>
<tr>
<td>Fuel</td>
<td>Kerosene, Diesel Oil</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generator Sets</td>
<td>Load Application allowance</td>
<td>100% (Resistance Load)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel Consumption (l/h)</td>
<td>Kerosene</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. Length (m)</td>
<td>11.0</td>
<td>12.0</td>
<td>9.9 (not including cockpit)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>Truck</td>
<td>2.5</td>
<td>3.4</td>
<td>3.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. Weight (ton)</td>
<td>Less than 20 tons</td>
<td>Less than 22 tons</td>
<td>Less than 25 tons</td>
<td>Less than 30 tons</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noise Level at 1 m (dBA)</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note**
- (*) Output: Up to 40 °C of ambient temp., 150 m above sea level
- (**) Other models are available. Output range is between 150 kW and 3,200 kW.

### Typical Examples

- MGP2000 mobile set
- MGP1250 mobile set
- TGP2000 trailer set
- MPU2000 trailer set
Dimensions of Standard Equipment

GPS750

- **A-CR (Outdoor type)**
  - **(95 dB / 99 dB)**
  - Dimensions: 800 x 950 x 850 mm
  - Weight: 4,900 kg

- **B-ER (Indoor type)**
  - **(95 dB / 104 dB)**
  - Dimensions: 600 x 620 x 2,300 mm
  - Weight: 1,590 kg

GPS1250/1500

- **A-CR (Outdoor type)**
  - **(95 dB / 99 dB)**
  - Dimensions: 800 x 1,000 x 850 mm
  - Weight: 6,800 kg

- **B-ER (Indoor type)**
  - **(95 dB / 99 dB)**
  - Dimensions: 600 x 620 x 2,300 mm
  - Weight: 1,650 kg

GPS2000

- **A-CR (Outdoor type)**
  - **(95 dB / 99 dB)**
  - Dimensions: 700 x 1,700 x 850 mm
  - Weight: 10,000 kg

- **B-ER (Indoor type)**
  - **(95 dB / 104 dB)**
  - Dimensions: 950 x 600 x 2,800 mm
  - Weight: 1,750 kg

GPS2500/3000/4000

- **A-CR (Outdoor type)**
  - **(95 dB / 99 dB)**
  - Dimensions: 700 x 1,700 x 850 mm
  - Weight: 13,000 kg

- **B-ER (Indoor type)**
  - **(95 dB / 104 dB)**
  - Dimensions: 950 x 600 x 2,800 mm
  - Weight: 1,750 kg

**Notes:**
1. The value in ( ) indicates Standard noise level on equipment side / Standard noise level on exhaust outlet.
2. Generator 1. The standard noise level on equipment side is approx. 85 dB (A).
3. For lower noise level on exhaust outlet, a low noise option is also available.
4. The overall length and weight of the equipment may vary depending on the specifications of the generator.

**Exhaust silencer**
1. The standard noise level is approx. 85 dB (A) (for outdoor type), or approx. 90 dB (A) (for indoor type).
2. For lower noise level at exhaust outlet, a low noise option is also available.
3. The weight of generator unit includes the weight of the exhaust silencer.
Dimensions of Standard Equipment

**GPS5000/6000**

**A-OR (Outdoor type)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimensions (W x D x H)</th>
<th>Noise Level</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPS5000</td>
<td>1500 x 900 x 750</td>
<td>85 dB (A)</td>
<td>55.570</td>
</tr>
<tr>
<td>GPS6000</td>
<td>1500 x 900 x 750</td>
<td>85 dB (A)</td>
<td>65.470</td>
</tr>
</tbody>
</table>

**B-ER (Indoor type)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimensions (W x D x H)</th>
<th>Noise Level</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPS5000</td>
<td>1500 x 900 x 750</td>
<td>85 dB (A)</td>
<td>48.100</td>
</tr>
<tr>
<td>GPS6000</td>
<td>1500 x 900 x 750</td>
<td>85 dB (A)</td>
<td>59.730</td>
</tr>
</tbody>
</table>

**Pneumatic Starting Equipment**

**Automatic Starting Generator Panel**

**Starting DC Power Supply Panel**

**Lead storage battery (HS)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard Capacity</th>
<th>Outdoor type</th>
<th>Indoor type</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS750</td>
<td>900 x 940 x 1,480</td>
<td>2,450</td>
<td>1,350</td>
</tr>
<tr>
<td>GS1150</td>
<td>1,000 x 1,040 x 2,000</td>
<td>2,450</td>
<td>1,350</td>
</tr>
<tr>
<td>GS1500/1500</td>
<td>1,100 x 1,148 x 2,300</td>
<td>2,450</td>
<td>1,350</td>
</tr>
</tbody>
</table>

**Lead storage battery (MSE)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard Capacity</th>
<th>Outdoor type</th>
<th>Indoor type</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS750</td>
<td>900 x 940 x 1,480</td>
<td>2,450</td>
<td>1,350</td>
</tr>
<tr>
<td>GS1150</td>
<td>1,000 x 1,040 x 2,000</td>
<td>2,450</td>
<td>1,350</td>
</tr>
<tr>
<td>GS1500/1500</td>
<td>1,100 x 1,148 x 2,300</td>
<td>2,450</td>
<td>1,350</td>
</tr>
</tbody>
</table>

**Alkaline storage battery (AHH-S)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard Capacity</th>
<th>Outdoor type</th>
<th>Indoor type</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS750</td>
<td>900 x 940 x 1,480</td>
<td>2,450</td>
<td>1,350</td>
</tr>
<tr>
<td>GS1150</td>
<td>1,000 x 1,040 x 2,000</td>
<td>2,450</td>
<td>1,350</td>
</tr>
<tr>
<td>GS1500/1500</td>
<td>1,100 x 1,148 x 2,300</td>
<td>2,450</td>
<td>1,350</td>
</tr>
</tbody>
</table>

**Air Tank**

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS750</td>
<td>500</td>
<td>2.5</td>
</tr>
<tr>
<td>GS1150</td>
<td>500</td>
<td>5.5</td>
</tr>
</tbody>
</table>

**Air Compressor**

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS750</td>
<td>5.5</td>
<td>1.0</td>
</tr>
<tr>
<td>GS1150</td>
<td>5.5</td>
<td>1.0</td>
</tr>
</tbody>
</table>
### Automatic Starting/Stopping Timing Chart

<table>
<thead>
<tr>
<th>Setting Condition</th>
<th>Duration</th>
<th>Timing</th>
<th>Ignition plug</th>
<th>Main fuel supply valve</th>
<th>Emergency fuel supply valve</th>
<th>Starting fuel supply valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>30 sec</td>
<td>Open</td>
<td>Open</td>
<td>Open</td>
<td>Open</td>
<td>Open</td>
</tr>
<tr>
<td>Standby</td>
<td>10 sec</td>
<td>Open</td>
<td>Open</td>
<td>Open</td>
<td>Open</td>
<td>Open</td>
</tr>
<tr>
<td>Low speed</td>
<td>30 sec</td>
<td>Open</td>
<td>Open</td>
<td>Open</td>
<td>Open</td>
<td>Open</td>
</tr>
<tr>
<td>High speed</td>
<td>5 sec</td>
<td>Open</td>
<td>Open</td>
<td>Open</td>
<td>Open</td>
<td>Open</td>
</tr>
</tbody>
</table>

### Single Line Connection Diagram

#### Low-pressure, integrated panel
- Connected to load: 340 V, 220 V/340 V, 440 V/440 V
- Power supply for oil cooling: 24 V DC initial excitation
- Fueling interface: 2, 12 V, 12 V, 24 V

#### High-pressure, separate panel
- Connected to load: 340 V, 220 V/340 V, 440 V/440 V

---

### Fuel Tank

- **430 L (Indoor type)**
  - Dimensions: 706.4 x 706.4
  - Dry weight: Approx. 290 kg

- **930 L (Indoor type)**
  - Dimensions: 1,006.4 x 1,006.4
  - Dry weight: Approx. 430 kg

- **1,390 L (Indoor type)**
  - Dimensions: 1,830 x 1,030
  - Dry weight: Approx. 650 kg

### Dimensions of Standard Equipment

- **GPS755**
  - Hight H1 (mm): 1,200 min
  - Hight H2 (mm): 4,000 max
  - Fuel Feed Pipe: SGP20A (300mm,SUS304)
  - Fuel Supply Pipe: SGP25A (500mm,SUS304)

- **GPS1250**
  - Hight H1 (mm): 1,700 min
  - Hight H2 (mm): 5,000 max
  - Fuel Feed Pipe: SGP32A (500mm,SUS304)
  - Fuel Supply Pipe: SGP32A (500mm,SUS304)

- **GPS1500**
  - Hight H1 (mm): 2,300 min
  - Hight H2 (mm): 5,500 max
  - Fuel Feed Pipe: SGP32A (500mm,SUS304)
  - Fuel Supply Pipe: SGP32A (500mm,SUS304)

---

### Notes:

1. () indicates the length and material of the flexible tube.
2. The pipe diameter may vary considerably depending on the pipe length.
Special Specifications for Use in Cold Areas

Lower Limit of Fuel Operating Temperature and Countermeasures for Use in Cold Areas

The fuel piping, dispenser tank, and filter in the generator unit should be appropriately heated up, depending on the type of fuel being used and the ambient temperature. If the lowest ambient temperature falls below the temperature given in the following table, consult us for countermeasures.

<table>
<thead>
<tr>
<th>Fuel Model</th>
<th>Ambient temperature (around dispenser tank and generator unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerosene, No. 1 / No. 2 Light Oil, Special No. 3</td>
<td>All Models -25°C</td>
</tr>
<tr>
<td>Light Oil, No. 3</td>
<td>GPS750 -10°C</td>
</tr>
<tr>
<td>Light Oil, No. 1 / No. 2 Class A Heavy Oil</td>
<td>Other than the above -15°C</td>
</tr>
<tr>
<td></td>
<td>All Models -18°C If ambient temperature falls below 0°C, heating is required for the dispenser tank.</td>
</tr>
</tbody>
</table>

Examples of Layout

![Diagram of GPS2000 and GPS6000 layouts](image)

Maintenance and Customer Support

- **Easy Maintenance**
  Kawasaki Standby Generator sets require very little maintenance. A monthly start-stop test is performed by the customer, and an extended service agreement is available for all other required maintenance.

- **Highly Skilled Engineers**
  Kawasaki’s service group is highly skilled. Our engineers and technicians train at our packaging and overhaul facility to ensure they have the latest technology and information to perform all the required field maintenance.

- **Support from worldwide branches**
  Kawasaki has five branches and three spare parts centers around the world to respond to the customer’s requirement immediately. Each branch has the capability to review and solve any issues that may arise. We fully support customers worldwide.

Service Network

![World map showing service network](image)
Installation References

**JAPAN GPS4000**
3,200kW x 3 units

**JAPAN GPS3000**
2,400kW x 3 units

**KOREA GPS6000**
4,800kW x 3 units

**MALAYSIA GPS1250**
1,000kW x 1 unit

**CHINA MGP1250**
4,800kW x 3 units

**ARGENTINA GPS1250**
1,000kW x 1 unit

**USA GPS4000**
3,200kW x 2 units

---

**TOTAL kW:** 2,203,000kW

- **Telecom:** 605,000kW
- **IT/IDC:** 195,000kW
- **Infrastructure:** 388,000kW
- **Building:** 335,000kW
- **Factory:** 161,000kW
- **Hospital:** 135,000kW
- **Public Office:** 101,000kW
- **Others:** 283,000kW

*Infrastructure: Including Electric/Gas/Sewage Facilities*