

# Generator Set Product Definitions

## Overview

Product Name	Typical Power Range (kW)	Typical Fuel(s)	Notes
<b>Industrial Generator Sets</b> 	<ul style="list-style-type: none"> <li>Usually greater than 50kW.</li> </ul>	Majority of Industrial standby sets are <b>Diesel</b> although some are <b>Natural Gas</b> . Industrial units which are used for peak shaving or continuous power generation for use in North America or Europe are usually natural gas due to emissions regulations which are not suitable to diesels. Some <b>LPG</b>	<ul style="list-style-type: none"> <li>Permanently mounted sets which are wired into the industrial building or commercial facility's electrical system by a manual or automatic transfer switch. Installed for standby mode (commonly diesel) or continuous or peak shaving operation (usually natural gas fueled).</li> <li>Should not be confused with a 'portable' generator set which is used at an 'industrial' location.</li> </ul>
<b>APUs</b> 	<ul style="list-style-type: none"> <li>Usually have up to 5-15 kW rating.</li> </ul>	<b>Diesel</b>	<ul style="list-style-type: none"> <li>Used in commercial vehicles with sleeper cabs to offset emissions from the primary truck engine. Power ratings are up to 15 kW as this will be sufficient to cover 'hotel loads' of the truck driver.</li> </ul>
<b>Residential Generator Sets</b> 	<ul style="list-style-type: none"> <li>Usually less than 50 kW.</li> </ul>	<b>Natural Gas, LPG</b>	<ul style="list-style-type: none"> <li>Permanently mounted sets which are wired into the house's electrical system by a manual or automatic transfer switch</li> <li>Should not be confused with a 'portable' generator set which is used at a 'residential' location.</li> </ul>
<b>Trailer Mounted Generator Sets</b> 	<ul style="list-style-type: none"> <li>Trailer mounted greater than 50 kW up to 100 kW</li> <li>Semi-trailer mounted units from 300 kW to 3,000 kW on the larger end.</li> </ul>	<b>Diesel</b> primarily with some potential for units that are <b>LPG</b> or <b>Gasoline</b> .	<ul style="list-style-type: none"> <li>May be similar or the same model as some larger portable units which are skid mounted – the only difference being these are mounted on a trailer.</li> </ul>
<b>Portable Generator Sets</b> 	<ul style="list-style-type: none"> <li>Smaller portables 0.5 to about 18 kW. Usually less than 60 kW.</li> </ul>	<b>Gasoline:</b> smaller sized units and personal use. <b>Diesel:</b> medium to large sized units and used on construction sites / contractors. <b>LPG:</b> available as a fuel but less common.	<ul style="list-style-type: none"> <li>Should not be confused with Residential generator sets. Even though some portable units are used in a residential setting for temporary power, portables are not permanently installed near the house and wired into the household electrical system (i.e. hard-wired).</li> </ul>
<b>RV Generator Sets</b> 	<ul style="list-style-type: none"> <li>Usually 2 kW to 40 kW.</li> </ul>	<b>Gasoline, LPG, Diesel</b>	<ul style="list-style-type: none"> <li>These generator sets are packaged and marketed as "RV" generator sets which are sized to be installed in an RV.</li> </ul>

# Generator Set Product Definitions

## Product: Industrial Generator Sets

**Overview:** The Industrial Generator Sets product includes sets which are permanently installed outside of industrial sites (factories, distribution centers, etc.) or commercial buildings (i.e. office buildings, grocery stores, banks, etc.) for emergency backup (standby) or peak shaving or continuous power. These generator sets may be open or closed (sound attenuated) depending on the installation location and application.

- Permanently mounted sets are normally wired into the industrial building's electrical system by a manual or automatic transfer switch. These generator sets are normally in either standby mode (commonly diesel) or in continuous or peak shaving operation (usually natural gas fueled).
- The distinguishing factors for these generator sets which make them 'Industrial' are the fact that they are:
  1. Permanently installed in a designated area in or around the building.
  2. Wired into the building's electrical system by a transfer switch (automatic or manual) to be in standby, peak-shaving or continuous supply mode.
- The majority of these industrial generator sets are diesel fueled although natural gas or LPG sets have become a more common fuel choice in recent years.
- Historically, a hurdle for natural gas fueled generator sets in industrial applications has been less capability, relative to diesel, to start up and assume all load within seconds. There will be a short delay before the natural gas unit will be able to accept full load. Therefore, a natural gas unit would not typically be as suitable for critical applications such as data centers or hospitals where there is no allowance for a lapse in power while the generator set is assuming the load.
- These generator sets should not be confused with diesel fueled portable or trailer mounted generator sets which may be used at an industrial job-site.

**Fuel:** The majority of Industrial Generator Sets are Diesel, but some are Natural Gas. Industrial Generator Set units which are used for peak shaving or continuous power generation in North America or Europe are usually natural gas due to emissions regulations which are not suitable to diesels.

**kW Range:** Usually greater than 50 kW but really depends on having enough capacity to supply loads to the facility where the set is installed.

## Product: APUs

**Overview:** The APUs (Auxiliary Power Unit) is a generator set used commercial vehicles with sleeper cabs to offset emissions from otherwise running the primary truck engine:

- APUs are specially designed and apply to heavy duty trucks in response to anti-idling legislation. As a result, there are other 'APUs' on the market which use many different operating schemes involving battery packs. These type APUs are not included in the APU product type as we are considering engine driven APUs.
- APUs are used to power 'hotel loads' needed by the truck driver during periods when the truck is not being driven. Hotel loads include air conditioning, heating, and electrical demands for appliances.
- All known engine-driven APUs are diesel fueled since the diesel fuel is already available due to the main truck engine running on diesel fuel.

**Fuel:** Diesel.

**kW Range:** Usually have up to 15 kW rating

# Generator Set Product Definitions

## Product: Residential Generator Sets

**Overview:** The Residential Generator Sets product includes sets which are permanently installed outside of the house:

- These units are fueled by either natural gas or LPG.
- They are permanently installed, usually on a cemented area, near the house.
- Residential generator set units are normally supplied in a closed configuration with a sound attenuating enclosure making the generator suitable for use in a residential area.
- These residential units appear similar to an industrial unit which is also in a closed configuration. One main difference between a residential and closed industrial set is that the residential unit is smaller in size (due to smaller capacity necessary to power one house) and also has a design which makes the generator set less noticeable in a residential setting.
- Since these installations are permanent, they typically have a connection of natural gas from the same natural gas pipeline which serves other household appliances.
- Residential generator sets are wired into the household electrical systems by means of a manual or automatic transfer switch.
- Residential generator sets do not include portable generators (gasoline, small diesel) which can be used at a residence. Portable generator sets are not permanently installed and are not connected to the house by an automatic transfer switch.

**Fuel:** Natural Gas, LPG

**kW Range:** Usually less than 50 kW

## Product: Trailer Mounted Generator Sets

**Overview:** The Trailer Mounted Generator Set product includes generator sets which are permanently installed on a trailer and maintain their mobility:

- Usually greater than 50 kW and due to their size they cannot be practically wheeled or carried – so they are towed.
- Diesel primarily with some potential for units that are LPG or Gasoline.
- Used on construction sites, for temporary events or other areas where temporary power is required.
- Trailer mounted generator sets are normally supplied in a closed configuration with a sound attenuating enclosure to reduce noise impact.
- Trailer mounted may be similar or the same model as some larger portable units which are skid mounted – the only difference being that these are mounted on a trailer.
- Trailer mounted units are most often in the range from 50 kW to 100kW.
- Units which typically range from 300 kW to 2,000 kW may be mounted on a semi-trailer. These larger semi-trailer units are mainly provided in the rental markets for special events or to fulfill a critical power need during a planned or unplanned power outage.

**Fuel:** Diesel (primary), LPG and Gasoline (less common)

**kW Range:** Trailer mounted most often 50 kW to 100 kW. Semi-trailer mounted units typically from 300 kW to 2,000 kW on the larger end.

# Generator Set Product Definitions

## Product: Portable Generator Sets

**Overview:** Portable generator sets are designed to temporarily provide emergency power during the electrical outages or when AC power is not available:

- Portable generator sets should not be confused with Residential generator sets. Even though some portable units are used in a residential setting for temporary power, the defining characteristic hinges upon whether or not the set is permanently installed near the house and wired into the household electrical system (i.e. hard-wired). In that case the generator set would be considered a “Residential” type.
- As the name implies this type of devices is for stand alone (non-hardwired) applications and are portable to be easily moved from one location to another. Portables normally energize a few critical appliances via extension cords, although high-end models can be used as a whole house generator for a temporary period of time when a permanently installed Residential type generator is not available. Besides residential applications, portables are often utilized for the following:
  - construction sites
  - camping trips
  - farms
  - events in a remote area where grid power is not easily accessible
- Portable generator sets are generally available from 0.5 kW to 60 kW. These generator sets are generally cheaper than stationary systems and do not require any professional installation.
- Portable generator sets are usually fueled by either gasoline (smaller end units) or diesel (higher rated units suited more for professional use).
- Most of the portable models are fueled from an on-board tank and therefore have a short run time (typically less than twelve hours per tank before refueling).
- Although portables may be normally thought of as smaller units that can be wheeled or carried by one or two people, the portable segment also includes larger skid mounted units that are “portable” and are used on construction sites or other areas where larger power supplies are needed on a temporary basis. Skid mounted units require a forklift or crane to move around a jobsite or other end-use location.
- Larger portable units which are skid-mounted are more commonly mounted on a trailer for ease of transport. This is most common on portable generator sets above about 18 kW which are used on construction sites. These generator sets would then be classified as a Trailer Mounted Generator Set. In these cases the actual generator product is exactly the same. The only distinguishing difference is the mounting on a trailer for the Trailer Mounted Generator Set.

**Fuel:** Gasoline, Diesel, LPG(<6kW)

**kW Range:** Smaller portables normally range 0.5 to 18 kW although some units are portable up to 60 kW.

## Product: RV Generator Sets

**Overview:** The RV (Recreational Vehicle) Generator Sets product includes generator sets which are specially sized and made to power a motor home / recreational vehicle:

- These generator sets are packaged and marketed as “RV” generator sets which are sized to be installed in an RV.
- These units are fueled by either gasoline, LPG, or diesel.
- Power ratings from 2 kW to 40 kW on the upper end.

**Fuel:** Gasoline, LPG, Diesel

**kW Range:** Usually 2 kW to 40 kW