



## Sizing Our Generators - Determining What Size We Need

### ◆ Sizing is a critical step preceding the Generator Purchase Decision:

- ◆ Selecting a generator that can handle all your power generation needs is one of the most critical aspects of the purchasing decision.
- ◆ While small sized generator can save you some money upfront, light loading on a needlessly large generator can lead to wet stacking and significantly shortened engine life. Engine manufacturers recommend engines do not run below 30% of full load for extended periods. However, using a generator too small for the load can result in unacceptable voltage drops and overheating.
- ◆ A generator not properly sized can put undue stress on the unit and even damage some of the devices connected to it. Unfortunately, determining exactly what size of generator to get is often very difficult and involves a number of factors and considerations.
- ◆ Making a choice amongst single phase, three phase, kW, KVA, welder, standby or motor starting generators can be overwhelming. To prevent such confusion, ESL offers you some important guidelines to consider about how the sizing process works. However, these are not enough. We always suggest talking to our certified Electrical Engineer before deciding.

### ◆ Generator Size Variations : Generators are now available in a wide range of sizes. Handy and portable gensets are available for homes and small offices, but larger businesses, data centers, buildings, plants, and industrial applications need to use the much larger sized industrial generators to meet their higher power requirements.

### ◆ Generator Sizing - How Much Power? : While an over-sized generator is a drain on your invaluable financial resources, generator under sizing is one of the most common mistakes committed by buyers. Not only does it involve the risks of damaging your new asset (the generator), but it can also damage other assets connected to it, create hazardous situations, and even limit overall productivity of the unit and / or the business relying on it. **If nothing else, the key thing to remember here is that more is always better than less.**

### ◆ Know Your Requirements : Buying the best or cheapest generator available in the market without any other consideration is clearly in not the best approach. It is always better to delve deep into your power generation requirements before making a choice. You can do this the following ways:

- ◆ Make a list of the items that need to be powered by the generator
- ◆ Make a note of the starting and running wattage of the respective items
- ◆ Calculate the total power requirements in KVA or KW

### ◆ How to Find the Starting and Running Wattage : Getting the right starting and running wattage of the devices you intend to power is crucial for calculating the accurate power requirements. Normally, you will find these in the identification plate or the owner's manual in the buyer's kit of each respective device, tool, appliance, or other electrical equipment.

### ◆ Ampere - Watt Conversion : You may often find power requirements of tools stated in amperes. In order to convert the power requirement of a tool from ampere to watts, follow these calculations.

For resistive load: Wattage = amperes x volts

For reactive load: Wattage = (amperes x volts) x load factor

### ◆ Advantages of choosing the right size generator:

- ◆ Here are just a few of the benefits obtained by going through the sizing process:
  - ◆ No unexpected system failures
  - ◆ No shutdowns due to capacity overload
  - ◆ Increased longevity of the generator
  - ◆ Guaranteed performance
  - ◆ Smoother hassle-free maintenance
  - ◆ Increased system life span
  - ◆ Assured personal safety
  - ◆ Much smaller chance of asset damage

### ◆ Where to Buy & Role of Distributor(s) and/or Service Provider(s):

- ◆ Since you are not only purchasing a substantial company asset, but most likely an item you will need to rely on for prime or emergency electrical power for a long time to come, almost invariably in a crisis, deciding where to buy is a key consideration not to be overlooked. The seller's years of experience, its focus on service activities, service background and reputation as a quality service provider, and so forth, all play a role.
- ◆ There are obviously numerous considerations to account for when selecting the appropriate generator for the job, whether it is a home application or an industrial one. If you are having a difficult time with it or would like more specific suggestions and recommendations for your situation, contact ESL today and one of our knowledgeable sales and support staff will be more than happy to assist.