

What is the difference between kW and kVa?

Here at CPS Generators we have a wide array of Diesel generators for sale, and it's important to pick the one we offer that can meet your needs perfectly. For those not well-versed in the terminology and science behind generators & power equipment, this can be quite the daunting task, so let's break down one of the most vital pieces of information you'll need.

When dealing with energy, generator size is often measured in kVa. kVa stands for "Kilovolt-Ampere." This is best described as the 'overall' power of the generator, or how much power is within the system overall.

kW stands for "kilowatts" and is a term you may have heard before. For example, your electrical bill is likely to measure your power usage in kW, and you probably encountered it during education. kW is used to describe how much power you can really use from the generator. For that reason, it's best to think of kW as the 'output' power.

By comparing kW and kVa, you can also find out the efficiency of a generator. A theoretical, perfect Diesel generator would have a kVa and kW that are equal, as its 'overall' power in the system would all be available to use as 'output' power.

You can work out the efficiency of a generator if you know the "power factor" of the generator. All you need to know for the purposes of working out the efficiency of a generator is that your average Diesel Generator has a pf of 0.8. To work out the efficiency of a generator on our site, simply use this formula:

Apparent power (kVA) x power factor (pf) = actual power (kW)

When looking for a Diesel Generator, this information is vital, but you may be wondering what to do with it. Before picking a generator, consider how many kW you need. If you're using one of our Diesel generators as a reliable backup system, take a look at your electrical bill (and possibly consult a professional) to find out how much energy you're using. Once we have our kW of energy we need to be able to supply, simply reverse our equation to work out the kVa ('overall' power) we will need:

Actual power (kW) / power factor (pf) = apparent power (kVa)

Now we have the required kVa, simply find the right size generator for you! Now you're one step closer to a UK made generator from CPS. Our generators are some of the best in class and are Fully tested and ISO 9001 accredited. That means we individually test every Generator at a 110% load before it leaves our factory. We sell a variety of generators, of varying sizes and sound levels.

We cater for a range of applications such as NHS and private healthcare, data centres as well as industrial and residential buildings, and if we don't have the exact generator your looking for we can complete bespoke orders tailored directly to you! Feel free to look around our site and browse are vast array of power solutions, including silent running Diesel generators and portable, mobile generators.