

Generators: How to Choose One for your Home or Small Office

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The current state of load shedding and power outages in South Africa has caused many problems for many people and especially for those people who work from home. We have received numerous questions to the site from folk wanting to know what they should be looking out for when choosing a generator for their home and/or small business they run from home.

Considering that this might go on for the next seven years or so, being prepared and equipping your home and home office to continue running smoothly during these power outages and load shedding may well add value to your property.

The following article was written by and published with the kind permission of Tim Jackson who is a font of knowledge when it comes to these weird and wonderful things that some of us don't know the first thing about. Thanks Tim, this is absolutely invaluable!

Buying a generator for your home or small office.

When Eskom's woes made us woes a few months ago, and then again in the last week, several people asked me about choosing a generator for their home or small business.

I figured it was time to put the info on paper, as it were.

When shopping for a generator, bear in mind that, as with most things, they are not all created equal.

Brand names

Beware of the cheap bargain units of unknown origin and bearing names like Wang King Generator Co on their labels!

These are often imported by people who have no facilities to back them up and, based on the mountains of faulty returned units I've seen in more than one importer's warehouse, you simply don't want to go down that road.

Not all generators of Chinese origin are bad. If you get one from a local company who imports a whole range of models and offers a good warranty, carries spares and has been around for some years then you're probably ok.

If you can afford the premium price then going for well-known brands like Honda, Yamaha etc is your safest bet.

Size/capacity

Does size count? This is probably the most commonly asked, and most misunderstood question of all. And that's just when we're talking about generators!

It can get horribly complicated and technical, which I revel in but which makes most folks glaze over, so here's the simplest version I can muster:

Generator power output is usually expressed in VoltAmps (VA) and, occasionally, in Watts (W).

When the numbers get into the thousands, these terms become kiloVoltAmps (kVA) or kilowatts (kW). Nothing weird, it's the same idea as distances of thousands of metres being expressed as kilometres.

For our purposes the rule of thumb is that 1000VA is about 800W.

To convert from Watts to VA, multiply Watts by 1,25 (and vice versa).

Also, you want your generator to be rated at least 30% higher than what you need.

Want to run twenty 100W light bulbs?

$20 \times 100W = 2000W$ (2kW).

2kW plus an extra 30% reserve = 2,6kW.

Need that in VA because that's how the gennies are marked in the genny shop?

$2,6\text{kW} \times 1,25 = 3,25\text{kVA}$.

So, your twenty 100W light bulbs need a 3,25kVA (or bigger) generator.

What size then?

What do you want to run?

Simply add up the rated power of every electrical device you need to have running off the generator simultaneously.

Here are some examples of common items:

Normal domestic light bulbs: 60W to 100W

Energy-saver light bulbs: 10W to 20W

TV: 150W

PC: 250W

Laptop: 100W

Desk fan: 30W

Food blender: 50W

Kitchen fridge/freezer: 200W

Bar fridge: 100W

Kettle: 1200W

Stove plate: 1500W

Oven: 2000W

Tumble dryer: 3000W

Geyser: 3000W

Vacuum cleaner: 1000W

Lawnmower: 3000W

Pool pump: 1200W

Air conditioner: Read on below.

I could keep going but that should be a good guide to start with.

One notable exception: Air conditioners. Although your air conditioner may be rated at, say, 3kW, it draws a startup surge every few minutes that is a few times this figure. Your generator will choke on this unless it's well up to the job of providing this brief surge current. For most folks this means forgetting about using the aircon and surviving with a desk fan instead. If you must use your aircon then you'll need a generator rated at least twice the power of your aircon's rating, possibly more.

Electric start

Generators that are available with an optional electric starter (in other words you turn a key to start the engine, much like starting your car, as opposed to pulling repeatedly on a starter cord until your arm pulls out of your shoulder socket like good old dad used to do with the lawnmower every weekend) should be bought with the electric start option.

These larger generators (typically 4kVA and bigger) have larger engines and they require enough strength to start with the pull-cord that it's an effort for the average man and next to impossible for the average woman.

Buy a trickle charger to keep the starter battery fully charged at all times. Shouldn't cost more than a hundert Ronts or two. You don't want to be fumbling around in the dark with a flat battery.

AVR

Some generators have an automatic voltage regulator (AVR). This is an electronic circuit that regulates the electrical output and makes it somewhat more friendly to more sensitive appliances like PCs. Good to have if the option is available to you.

Whatever you do, make sure that you have a UPS!

Not only will the UPS keep your PC(s) going while you get the genny started but it will also fill in the brief dips and surges in the generator's power output that occur when other appliances drawing power form the genny switch on or off.

Absolute rule: No UPS = heartache.

AMF

Automatic Mains Failure units are an optional feature on larger generators. These will detect a power failure, start up your generator and switch you from municipal to generator power automatically. They do the reverse when they detect that municipal power has been restored.

Sadly, AMF panels are very expensive (some few thousands of Ronts at the bottom end) and are therefore only really applicable if you're buying a serious generator in the order of 20kVA or more.

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