

The **ideal generator** size is one that is correctly matched to power all the things you want to run at the same time.

If it is too big, not only will it be more expensive to purchase, but it will not necessarily run as **efficiently** as the correctly matched size. If it is too small, some of your equipment may not give its maximum output, and at times its lifespan may be reduced.

Here's all you do-

All electrical appliances and motors, should have (by law), an electrical rating plate with the power and electrical requirements shown on it.

- If the appliance has a rating plate showing:
Watts - If this is shown as kW multiply x 1000 which = Watts
HP - To return this old measure to Watts multiply x 746 = Watts
- If there is no rating plate showing the power, please refer to the 'Average Watts Table' below, showing typical appliances that you can compare to yours and select an 'Average Watts' figure.

For standard **Industrial Electric Motors**, the power shown on the motor rating plate does not take into account the motor efficiency or starting load, and therefore – Look up the chart below for Electric Motors and use the '**Average Watts**' figure shown for the particular standard size motor indicated.

Typical Example

| Appliance / Power Tool | Running Watts | Starting Watts |
|------------------------|---------------|----------------|
| 5 x 100 watts lights | 500 | 0 |
| Kettle | 1800 | 0 |
| Toaster | 600 | 0 |
| 550 watt motor | 740 | 2200 |
| Refrigerator | 550 | 1350 |

| | | | | | |
|--------------|---------------|---|--------------------------|---|----------------------|
| | Running watts | + | starting watts | = | Total watts required |
| Total | 4190 | | 2200 | | 6390 |
| | | | (highest starting watts) | | |

Therefore, for example a PH080 (Honda Engine) or PB080 (Briggs & Stratton, Vanguard Engine), which has a 'Real Power' capacity of 6,800 Watts would be ideal, and it even has an additional 6% extra capacity.

Your Requirements

| Appliance / Power Tool | Running Watts | Starting Watts |
|------------------------|---------------|----------------|
| | | |
| | | |
| | | |
| | | |
| | | |

| | | | | | |
|--------------|---------------|---|--------------------------|---|----------------------|
| | Running watts | + | starting watts | = | Total watts required |
| Total | | | | | |
| | | | (highest starting watts) | | |

Now all you have to do is Add up!

Just add up all the 'Average Watts' for every appliance or motor that you are going to run at any one time, and choose the biggest combination of loads.

Then ... just pick a Generating Set with watts equal to or slightly greater than your total 'Average Watts'.

If you are not very technically minded, and do not have confidence in your choice, either from our Master Chart, or from these calculators, do not hesitate to ring us and we will be happy to work it out for you.

Please note: a generator should never be operated at its maximum wattage capacity for more than 30 minutes. If you need to operate a generator for more than 30 minutes, it is recommended you use only **90% of the maximum wattage**. Generators at all times need to be in a well ventilated area and powerpoints should never be overloaded.

Average Watts Table

| Appliance / Power Tool | Average Running Watts | Average Starting Watts | Appliance / Power Tool | Average Running Watts | Average Starting Watts |
|---------------------------------|-----------------------|------------------------|------------------------------|-----------------------|------------------------|
| Air Conditioner (reverse cycle) | | | Iron | 900-1200 | 0 |
| ▪ Small – 1 HP | 2000 | 3000 | Kettle | 1200-2400 | 0 |
| ▪ Medium – 2 HP | 4000 | 6000 | Lighting | | |
| ▪ Large – 3 HP | 6000 | 8500 | ▪ Fluorescent | 40 | 0 |
| Air Cooler (evaporative) | 150-800 | 0 | ▪ Compact Fluorescent | 9-15 | 0 |
| Angle Grinder (100mm) | 1200-1800 | 4000 | ▪ incandescent | 40-100 | 0 |
| Angle Grinder (230mm) | 2400 | 8000 | ▪ Halogen | 250-400 | 0 |
| Bricksaw | 2400-5000 | 0 | ▪ Floodlights – small | 250 | 0 |
| Clock Radio | 60 | 0 | ▪ Floodlights – large | 500-1500 | 0 |
| Clothes Drier | 2400 | 0 | ▪ LED | 10 | 0 |
| Coffee Machine | 600-2400 | 0 | Microwave | 1300 | 0 |
| Computer | 150-300 | 0 | Oven | | 0 |
| Concrete Mixer | 1200-2400 | 4000 | ▪ Mini | 800 | 0 |
| Dishwasher | 2400 | 0 | ▪ Conventional | 2400 | 0 |
| Drill – Hammer | 650-1400 | 3000 | ▪ Fan Forced | 1800 | 0 |
| Drill – Power | 450-800 | 2000 | Radio | 60 | 0 |
| Fan | | | Range | | 0 |
| ▪ Exhaust | 40 | 0 | ▪ Small hotplates | 1000 | 0 |
| ▪ Ceiling | 100 | 0 | ▪ Large hotplates | 2000 | 0 |
| Food Blender | 450 | 1400 | ▪ Cooktop – Ceramic | 1000-2000 | 0 |
| Food Processor | 450 | 1400 | ▪ Cooktop – Electric Solid | 2000-4800 | 0 |
| Freezer (4 star rating) | 150-300 | 0 | Refrigerator (4 star rating) | 150-650 | 1350 |
| Frypan – electric | 1350 | 0 | Sewing machine | 75 | 0 |
| Hairdryer | 1200-1600 | 0 | Shaver | 15 | 0 |
| Hand Saw | 2400 | 0 | Stereo | 100 | 0 |
| Heater | | | Television | 75-300 | 0 |
| ▪ Oil filled column | 1000-2400 | 0 | Toaster | 600-1250 | 0 |
| ▪ Radiators / portable fan | 600-2400 | 0 | Vacuum Cleaner | 1000-2400 | 0 |
| ▪ Space | 3600-7000 | 0 | Washing Machine | 500-2400 | 0 |
| Hot Water Service | 2400-4800 | 0 | Welder* (240V/140 Amp) | Min 6000 | 6500 |

* To power welders, we recommend a minimum size set of 6.0kW for general field use.

Electric Motors

The average Watts that have be used to size a generating set takes into account the power lost within the electric motor, the extra power required by the motor each time it is started and the additional power that the generator can provide above its normal rating.

The Watts shown here assume that the motor will, once started, be required to operate at its full output power continuously.

| Watts on Motor Name Plate | Average Running Watts | Average Starting Watts |
|---------------------------|-----------------------|------------------------|
| 180W (¼HP) | 240 | 720 |
| 250W (½HP) | 340 | 1000 |
| 370W (½HP) | 500 | 1480 |
| 550W (¾HP) | 740 | 2200 |
| 750W (1HP) | 1000 | 3000 |
| 1100W (1½HP) | 1475 | 4400 |
| 1500W (2HP) | 2000 | 6000 |
| 1870W (2½HP) | 2500 | 7450 |
| 2200W (3HP) | 2950 | 8500 |

Other Options to consider ...

Is Electric or Manual Recoil Start Needed?

These days recoil start generators are easy to start. It depends on what you would prefer. Manual Recoil Start Generators are hand operated, whereby you start the generator with a pulling motion on a cord. Electric Start Generators are key started with a battery attached. Electric start generators are ideal for people who just don't have the strength or power to start a recoil start generator – majority of electric start are also recoil start generators.

Petrol or Diesel?

It really depends on where you use the generator or how often you use it. Petrol generators are primarily designed for not running for extended periods of time at maximum load. In addition, petrol generators, because of their simpler design, are less expensive than diesel generators. Diesel generators are primary designed to operate near or at full power for extended periods of time.

Just a Word of Caution

The above explanations and calculations are estimates and have been simplified and generally cover most commonly encountered domestic and light trade requirements. For correct wattages please check the specific power tool or appliance. Because of the varying nature of many electric motor driven devices, we would recommend that you contact us where you feel that your circumstances may be different.