

What Size Generator Do I Need?

When purchasing a generator, you want to find the 'goldilocks zone'. You need to have a generator big enough that you have the power to run everything you want safely and without damaging your generator. Still, you don't want a generator that is bigger than required either as that will hit your bank balance hard.

Rather like packing for your summer holidays, it is easy to get it wrong either way and end up with too much that you'll never need or not have enough to get by. It often takes a few tries to get it right when you are packing for a holiday – you can always tell people who go away a lot because they manage to travel light but still have everything they need.

However, when you are a first-time buyer of a generator, the consequences and costs involved in getting the sizing wrong can be worse than just forgetting your speedos.

Thankfully, this useful guide will show you how to size a generator so you have the right generator for all your needs without overspending

What Size Generator Do You Need?

The first question you need to ask yourself is what will your generator be used for and how often is it going to be used. These questions can also be thought of in terms of whether your generator is for home or work use.

Residential vs Industrial

Generators vary in size, that is the capacity or power output, enormously. Generators for home or residential use start at around 5KW and go up to 50KW of power output. Industrial generators start at 50KW and can go up to a huge 3000KW.

So, when thinking about the size of a generator, you need to first decide on the use of the generator, whether it is for industrial or residential use.

Process Of Sizing

Once you know whether the generator you need is for industrial or home use, you then need to begin to think about what your generator will be powering.

List Of Items That Will Be Powered

First of all, make a list of everything that your generator will need to provide power for. It is important to include and think of everything. If it's for home use, be sure to include all essential items required for day-to-day living – water, heat, light and kitchen use, such as fridge/freezer and cooker as well as other essentials such as phone chargers and laptops.

Determine Starting Wattage

As a rule, electrical equipment, whether it is your electrical appliances at home or your power tools or other electrical equipment at work, will have two wattage numbers of their labelling or manufacturer's guide (if the label is for whatever reason unavailable). There is a starting wattage, which is a higher number and a running wattage.

Your generator **MUST** be able to manage the starting wattage of all the appliances it is expected to run.

Generator Label Checks

It is always advisable to buy a generator from a reputable source, such as ourselves at Generator Pro, to be sure that you are getting a safe, well-running generator and also that it is the size you believe you are buying.

You can also check the power output of your generator by looking at its labelling. This is essential for knowing how much you can run from it at any one time.

Generators should have three types of tags or labels visible: data tags, which will have the output and other engine specifications, caution labels will help you ensure you are running your generator properly and warning/danger labels will help you ensure you are running your generator safely to not endanger yourself or others.

What If I Can't Find The Label?

All appliances are different so if you can't find a label on the product itself, we would always advise googling the model number. If you are unlucky with your search and still can't find a power rating, here is a rough idea of the power consumption of different products:

Appliances:

	Approximate Starting Wattage	Approximate Running Wattage	240V required?
Refrigerator or Freezer (Energy Star)	1200	132-192	
Microwave Oven			
650 watts	1000	1000	
800 watts	1300	1300	
1000 watts	1500	1500	
Incandescent Lights	as indicated on bulb (i.e. 60W)	as indicated on bulb (i.e. 60W)	
Furnace Fan, gas or fuel oil			
1/8 Horsepower	500	300	Y
1/6 Horsepower	750	500	Y
1/4 Horsepower	1000	600	Y
1/3 Horsepower	1400	700	Y

	Approximate Starting Wattage	Approximate Running Wattage	240V required?
1/2 Horsepower	2350	875	Y
Television			
Tube type	300	300	
Flat Screen (20")	120	120	
Flat Screen (46")	190	190	
Coffee Maker (4 cup)	600	600	
Dishwasher (Cool Dry)	540	216	
Electric Fry Pan	1500	1500	
Electric Range (8-inch element)	2100	2100	Y
Automatic Washer	1200	1200	
Clothes Dryer (Electric)	6750	5400	Y
Radio	50 to 200	50 to 200	
Sump Pump			
1/3 Horsepower	1300	800	Y
1/2 Horsepower	2150	1050	Y

	Approximate Starting Wattage	Approximate Running Wattage	240V required?
Window Air Conditioner (10,000 BTU)	2200	1500	
Computer			
Laptop	200-250	200-250	
Desktop	600-800	600-800	
Monitor (LCD style)	30	30	
Printer	400-600	400-600	
Hot Water Heater	4500	4500	Y
Garage Door Opener	1420	720	

	Approximate Starting Wattage	Approximate Running Wattage
Television		
Tube type	300	300
Flat Screen	120	120
RV Air Conditioner		
11000 BTU	1600	1010
13500 BTU	2800	1800

	Approximate Starting Wattage	Approximate Running Wattage
15000 BTU	3300	2000
RV Refrigerator	600	180
Blender	850	400
Electric Grill (tabletop)	1650	1650
Slow Cooker	170-270	170-270
Hair Dryer (1600 watts)	1900	1800
Microwave Oven (650 watts)	1000	1000
Coffee Maker	600	600
Radiant Heater	1300	1300
Laptop computer	200-250	200-250
Satelite Receiver	250	250
Radio	50 to 200	50 to 200
Two-Way Radio		
12A	360W	360W
23A	840W	840W
35A	960W	960W

	Approximate Starting Wattage	Approximate Running Wattage
Fan (portable)	120	40
DVD Player	350	350

Power Tools:

	Approximate Starting Wattage	Approximate Running Wattage
Air Compressor		
1/2 hp	1600	975
1 hp	4500	1600
Bench Grinder (8 in.)	2500	1400
Circular Saw (Heavy Duty, 7 1/4 in.)	2300	1400
Concrete Vibrator		
1/2 hp	840 (avg.)	840 (avg.)
1 hp	1080 (avg.)	1080 (avg.)
2 hp	1560 (avg.)	1560 (avg.)
3 hp	2400 (avg.)	2400 (avg.)
Demolition hammer	1260 (avg.)	1260 (avg.)

	Approximate Starting Wattage	Approximate Running Wattage
Drain cleaner	250 (avg.)	250 (avg.)
Drills		
3/8 inch, 4 amps	600	440
1/2 inch, 5.4 amps	900	600
Electric Chain Saw (14 inches, 2 hp)	1100	1100
Hand Drill (1/2 in.)	900	600
High-pressure Washer (1 hp)	3600	1200
Rotary hammer	1200 (avg.)	1200 (avg.)
Table Saw (10 in.)	4500	1800
Industrial Motors		
Split Phase		
1/8 Horsepower	1200	275
1/4 Horsepower	1700	400
1/3 Horsepower	1950	450

	Approximate Starting Wattage	Approximate Running Wattage
1/2 Horsepower	2600	600
Capacitor Start Induction Run		
1/8 Horsepower	850	275
1/4 Horsepower	1050	400
1/3 Horsepower	1350	450
1/2 Horsepower	1800	600
3/4 Horsepower	2600	850
1 Horsepower	3000	1000
1 1/2 Horsepower	4200	1600
2 Horsepower	5100	2000
3 Horsepower	6800	3000
4 Horsepower	9800	4800
Capacitor Start Capacitor Run		
1/8 Horsepower	600	275
1/4 Horsepower	850	400

	Approximate Starting Wattage	Approximate Running Wattage
1/3 Horsepower	975	450
1/2 Horsepower	1300	600
3/4 Horsepower	1900	850
1 Horsepower	2300	1000
1 1/2 Horsepower	3200	1600
2 Horsepower	3900	2000
3 Horsepower	5200	3000
4 Horsepower	7500	4800
Fan Duty		
1/4 Horsepower	1200	650

Miscellaneous:

	Approximate Starting Wattage	Approximate Running Wattage
Electric Fence, 25 miles	250	250
Milk Cooler	1800	1100
Milker (vacuum pump, 2hp)	2300	1000
Portable Heater (kerosene,		

	Approximate Starting Wattage	Approximate Running Wattage
diesel fuel)		
50,000 BTU	600	400
90,000 BTU	725	500
150,000 BTU	1000	625
Battery Charger		
15 amp	380	380
60 amp with 250-amp boost	1500/5750	1500/5750

Total Power Requirements

The time your generator is going to be used for will also affect the total power requirement that you need. As a general rule, to keep your generator running efficiently for years to come, you don't want to be running it at its maximum capacity for more than half an hour.

Therefore, you need to work out how long your generator is going to be put to work.

If it is going to be for short bursts of time, i.e. for power tools that will be used sporadically or for charging and brief use while camping, then running at maximum capacity shouldn't be too much of a problem.

If it is to power your house in the case of a power outage that could last a day or more, or any other circumstance where it needs to be running for long periods, you need to allow for a 20-30% margin of excess capacity.

Consult Our Experts

Generators are not a short-lived purchase. You want to be sure that when you make this investment that you are making the right choice.

At [Generator Pro](#), we are always happy to help you make the right choice for your needs using our in-house expertise and experience. Whether you are replacing a generator or buying one for the first time, we can help. If you are a generator newbie, try our [first-time buyer's tool](#) to get you started.

We are genuinely passionate about two things: generators (of course) and saving YOU money. So, why would you go anywhere else!