

Generator Sizing Worksheet Overview

In order to properly size the load that you will need to operate with your generator use this worksheet to identify the appliances within your home you will want to run simultaneously. This is an important point because you can get by with a smaller generator if you are willing to manually control when appliances start and operate. For instance, you could elect to run your freezer or wash clothes only when you were not cooking.

You will see two different columns for Watts: Running and Starting. Appliances and equipment with motors require a larger amount of power to start than to run. Once they are running the power required is reduced. If you want all motor powered devices to run simultaneously your generator will have to be sized to handle the total load as calculated using the Starting Watts values. What happens if you undersize your generator? When motor-powered appliances try to start on an undersized generator, overall power to running appliances will drop and create an under-voltage situation that can damage your appliances.

The values in the worksheet tables are based on average appliances found in a typical home. It is best if you can obtain the exact power requirements from your specific appliances and equipment. Each appliance will generally have a plate or label with this information. Unfortunately, this label is sometimes hard to get to so use our information or research your specific appliance at the manufacturer's website.

If the label information does not provide information in watts you can calculate the wattage using this formula:

$$\text{volts} \times \text{amps} = \text{watts}$$

Another useful formula can be used to convert horsepower into watts:

$$\text{horsepower} \times 932 = \text{running watts}$$

Finally, if you feel uncertain about your calculations you can always add a correction factor to protect against under sizing your generator. A factor of **10%** is frequently used for this purpose.

Using the Worksheet

We have tried to make the worksheet easy to use. Take it with you around your home and record the appliances and equipment you want to operate with the generator. The "#" column is for capturing multiple occurrences. Multiply this column by the appropriate watts column and then subtotal for each area of the worksheet. If you find you have an appliance that our worksheet does not cover, you can get additional information from our website at:

<http://www.sussexrec.com/brochures/watts.html>



Worksheet

Name: _____ Date: _____

Address: _____

Heating System Loads

Description	#	Running Watts	Starting Watts	Total Watts
Furnace Fan 1/8 th horsepower		300	500	
Furnace Fan 1/6 th horsepower		500	750	
Furnace Fan 1/4 th horsepower		600	1000	
Furnace Fan 2/5 th horsepower		700	1400	
Furnace Fan 3/5 th horsepower		875	2350	
Baseboard Electric Resistance Heat Unit		2000		
Electric Thermal Storage Heat Unit		2175		
Heat Pump		4500	12000	
Space Heater		1400		
Heating System Subtotal				

Cooling System Loads

Description	#	Running Watts	Starting Watts	Total Watts
Central Air 10,000 BTU		1500	2200	
Central Air 20,000 BTU		2500	3300	
Central Air 24,000 BTU		3800	4950	
Central Air 32,000 BTU		5000	6500	
Central Air 40,000 BTU		6000	6700	
Window Unit 6,000 BTU		850	1200	
Window Unit 10,000 BTU		1350	2200	
Window Unit 12,000 BTU		1600	2600	
Window Unit 14,000 BTU		1860	3200	
Ceiling Fans		170		
Floor Fans		800	2000	
Cooling System Subtotal				

Living Areas Loads

Description	#	Running Watts	Starting Watts	Total Watts
Television		300		
VCR / DVD		150		
Home Stereo		150		
Computer, monitor, printer		1200		
Lights		75		
Electric Blanket		400		
Radio		100		
Living Areas Subtotal				



Kitchen Loads

Description	#	Running Watts	Starting Watts	Total Watts
Refrigerator		800	2000	
Dishwasher		1800		
Electric range – 6" elements (per element)		1500		
Electric range – 8" elements (per element)		2100		
Electric Oven		3410		
Freezer		800	1200	
Microwave, 750 watt		750		
Electric Toaster		1000	1600	
Coffee Maker		850		
Blender		600	900	
Food Processor		360	500	
Electric Broiler		1430		
Electric Skillet		1500		
Kitchen Subtotal				

Bath Loads

Description	#	Running Watts	Starting Watts	Total Watts
Hair Dryer		1200		
Curling Iron		50		
Hot Tub / Spa		4500		
Bath Subtotal				

Utility Area Loads

Description	#	Running Watts	Starting Watts	Total Watts
Washing Machine		960	2400	
Clothes Dryer – Electric		5500	8000	
Clothes Dryer – Gas		750	1800	
Electric Water Heater		4000		
Clothes Iron		750		
Sewing Machine		110		
Vacuum Cleaner		900		
Dehumidifier		400	650	
Air Cleaner		100		
Garage Door Opener – ¼ horsepower		550	1100	
Garage Door Opener – 1/3 horsepower		725	1400	
Well Pump – ½ horsepower		1300	3500	
Well Pump – 1 horsepower		1500	4500	
Well Pump – 2 horsepower		2000	5500	
Sump Pump – 1/3 horsepower		800	1300	
Sump Pump – ½ horsepower		1050	2150	
Swimming Pool Pump		600	1100	
Utility Area Subtotal				



Other Loads Not Covered

Description	#	Running Watts	Starting Watts	Total Watts
Other Loads Subtotal				

Selecting Your Generator

You are now ready to select your generator based on your calculations. Take the individual subtotals from above and add them to determine the maximum size generator you will need to supply power to all the loads in your home.

Total Heating Watts	
Total Cooling Watts	
Total Kitchen Watts	
Total Living Area Watts	
Total Bath Watts	
Total Utility Watts	
Total Other Watts	
My Generator's Total Watt Capacity	

With this information, you can select the Onan generator right for you from the following table.

Model	Type	Power (watts)	Voltage	Type of start	Dry Weight
HomeSite Power 2400	Portable	2000	120/240	Manual	99
HomeSite Power 3500	Portable	2500	120/240	Manual	101
HomeSite Power 5500	Portable	4000	120/240	Manual	181
HomeSite Power 6500	Portable	5000	120/240	Electric	185
RS 12000	Permanent	11000	120/240	Automatic	575
RS 15000	Permanent	15000	120/240	Automatic	1213
RS 20000	Permanent	20000	120/240	Automatic	925
RS 30000	Permanent	30000	120/240	Automatic	1117
RS 45000	Permanent	45000	120/240	Automatic	2668

Next step? Contact SREC Resources to order your generator today! Call: 973-875-1365 for complete details.