Wattage Requirements & Calculator

There are different categories to consider when choosing a generator for your needs: recreation, home standby and construction. You may also want to consider using an inverter generator for sensitive electronic devices. Inverter generators are smaller and lighter as power is created electronically and not through a conventional alternator. Inverter power offers the cleanest power output.

If you want a generator for home standby, say to run your refrigerator, you'll need at least 2500 watts or more. And if you want to use a transfer switch so that power can go directly into your home, you'll want a generator with at least 3000 watts.

You'll also need to consider the maximum and rated power of the generator. This is important depending on what items you want to run off of your generator. Items such as toaster, lamps, and coffee makers are **resistive**, or constant loads and their total load can be calculated at amps x 1. Items such as saws and drills are **reactive** loads and while the running load may be small, the starting load should be calculated at running amps x 3. Remember, after the intial start less power is required for actual operation.

Always remember that simple power management will allow a smaller generator to do a big job. Very seldom are all tools or appliances operating simultaneously. When calculating power requirements, consider the starting requirements are only for the initial start and then additional tools may be operated in addition.

Remember Ohm's Law

Watts = Volts x Amps
Amps = Watts/Volts

So, if you have two of the numbers (e.g. volts, amps) then you can find out the other (e.g. watts). This can help you to determine the rated power that you'll need from your generator.

AVERAGE WATTAGE REQUIREMENT GUIDE (AMPS X VOLTS = WATTS)		
Household	Running Wattage Requirements	Additional Wattage Required For Starting
Coffee Maker	1750	0
Dishwasher Cool Dry	700	1400
Electric Fry Pan	1300	0
Electric Range 8-inch element	2100	0
Microwave Oven 625 watts	625	800
Refrigerator or Freezer	700	2200
Automatic Washer	1150	2300
Clothes Dryer Electric	5750	1800
Furnace Fan, gas or fuel oil		

1/8 Horsepower	300	500
1/6 Horsepower	500	750
1/4 Horsepower	600	1000
1/3 Horsepower	700	1400
1/2 Horsepower	875	2350
Lights	as indicated on bulb	0
Radio	50 to 200	0
Sump Pump		
1/3 Horsepower	800	1300
1/2 Horsepower	1050	2150
Television - Color	300	0
Central Air Conditioner 10,000 BTU	1500	2200
Contractor	Running Wattage Requirements	Additional Wattage Required For Starting
Air Compressor 1 Horsepower	1500	4500
Bench Grinder 8 inches	1400	2500
Hand Drill 1/2 inch	600	0
High-pressure Washer 1 Horsepower	1200	3600
Circular Saw, Heavy Duty 71/4 inches	1400	2300
Electric Chain Saw 14 inches, 2 Horsepower	1100	0
Table Saw 10 inches	1800	4500
Drills		
3/8 inch 4 amps	440	600
1/2 inch 5.4 amps	600	900
Industrial Motors	Running Wattage Requirements	Additional Wattage Required For Starting
Split Phase		
1/4 Horsepower	600	1000
1/2 Horsepower	875	2300
Capacitor Start Induction Run		
1/3 Horsepower	720	1300

1 Horsepower	1600	4500
Capacitor Start Capacitor Run		
11/2 Horsepower	2000	6100
Fan Duty		
1/4 Horsepower	650	1200
Farm Equipment	Running Wattage Requirements	Additional Wattage Required For Starting
Electric Fence, 25 miles	250	0
Milk Cooler	1100	1800
Milker (vacuum pump), 2 Horsepower	1000	2300
Portable Heater (kerosene, diesel fuel)		
50,000 BTU	400	600
90,000 BTU	500	725
150,000 BTU	625	1000
Battery Charger		
15 amp	380	0
60 amp with 250-amp boost	1500/5750	0
100 amp with 300-amp boost	2400/7800	0
Electric Welder		
200 amp AC	9000	0
230 amp AC, at 100 amp	7800	0
Air Compressors	Running Wattage Requirements	Additional Wattage Required For Starting
1/2 Horsepower	975	1600
1 Horsepower	1600	4500
Computers	Running Wattage Requirements	Additional Wattage Required For Starting
Desktop	600 to 800	0
Laptop	200 to 250	0
Monitor	200 to 250	0
Fax	600 to 800	0
Printer	400 to 600	0