		Start up
Freezer 5 A x 120 V =	600 watts	1200 W
Computer	400 watts	400 W
Washing Machine 7½ A	900 watts	1800 W
Well	1000 watts	4000 W
	========	======
	3000 watts	8000 watts

Pure Sine Wave

To Convert AMPS to WATTS:

Multiply: AMPS X 120 (AC voltage) = WATTS
This formula yields a close approximation of the continuous load of the appliance

To Calculate approximate Startup Load:

Multiply: WATTS X 2 = Starting Load
This formula yields a close approximation of the starting load of the appliance, though some may require an even greater starting load. ***NOTE:*** Induction motors such as air conditioners, refrigerators, freezers and pumps may have a start up surge of 3 to 7 times the continuous rating.

Most often the start up load of the appliance or power tool determines whether an inverter has the capability to power it.

For example, you have a freezer with a continuous load of 4 amps, and a start up load of 12 amps:

4 amps x 120 volts = 480 watts continuous
12 amps x 120 volts = 1440 watts starting load

You would need an inverter with peak-surge rating greater than 1440 watts.

FORMULA to convert AC Watts to DC Amps:

AC Watts divided by 12 x 1.1 = DC Amps
(this is the size vehicle alternator you would need to keep up with a specific load; for example, to keep up with a continuous draw of 1000 watts, you would need a 91 amp alternator)

HOW MANY WATTS DO YOU NEED?

To Select an Inverter from DonRowe.com that has enough power for your application, add the watts for items you may want to run at the same time. Use the total wattage, plus 10% to 20%, as your minimum power requirement.

Note: The wattages given below are estimates. The actual wattage required for your appliances may differ from those listed. Check the nameplate on the appliance to determine the actual wattage required.

* <u>Appliances and tools with induction motors</u> (marked * in tables) <u>may require from 3 to 7 times</u> the listed wattage when starting. The start-up load of the appliance or tool determines whether an inverter has the capability to power it. Be sure to check the specific wattage requirements and operating instructions for appliances / tools to be used.

F.Y.I. ..... (conversion formula: Watts ÷ 120 = Amps .... Amps x 120 = Watts)

Common Appliances

Appliance	Est. Watts	Appliance	Est. Watts
Coffee pot (10 cup)	1200	VCR	40-60
Coffee pot (4 cup)	650	CD or DVD Player	35
Toaster	800-1500	Stereo	30-100
Cappuccino Maker	1250	Clock Radio	50
Coffee Grinder	100	AM/FM car cassette	8+
Blender	300	Satellite dish	30+
Microwave (600 to 1000 W cooking power)	1100-2000W (elec. consumption)	Vacuum cleaner	300-1100
Waffle iron	1200	Mini Christmas lights (50)	25
Hot plate	1200	Space Heater	1000-1500
Frying pan	1200	Iron	1000
Toaster Oven	1200	Washing machine	920
Blow dryer	900-1500	12" 3 speed table fan	230
Computer - laptop - pc & monitor - printer-inkjet	 50-75 200-400 60-75	TV - 25" color - 19" color TV or monitor - 12" b&w 13" color TV/VCR Combo	300 160 30 230
*Refrigerator/Freezer	600	Game Console (X-Box)	100
*Freezer	500-800	*Furnace Fan (1/3hp)	1200

Common Tools

Tool	Est. Watts	Appliance	Est. Watts
Jig Saw	300	1/4" drill	250
Band Saw	1200	3/8" drill	500
Table Saw	1800	1/2" drill	750
6 1/2" circ. saw	1000	Shop Vac 5 hp	1000
7 1/4" circ. saw	1200+	*Sabre Saw	500
8 1/4" circ. saw	1800	*Portable Grinder	1380
Disc Sander	1200	*Electric Chain Saw 14"	1200
Makita Chop Saw	1550	*Airless Sprayer 1/2 hp	600
Makita Cut Off Saw	1000	*Air Compressor 1 hp	2000

Pumps and Air Conditioners

Pump	Running	Starting	Air Conditioner
*Well Pump 1/3 hp	750	1400-3000	
*Well Pump 1/2 hp	1000	2100-4000	*7000 BTU to 10000 BTU Running: 1000-1500. Starting: 2200-5000. (A/C's are a very difficult load because of the high start-up surge. Use the Locked Rotor Amps to determine the start up surge requirement).
*Sump Pump 1/3 hp	800	1300-2900	
*Sump Pump 1/2 hp	1050	2150-4100	