

Comparison of 20 amp to 30 amp 50 amp power

So just how much more power does a 50-amp shore power plug have compared to a 20- or 30-amp plug? It all comes down to watts. There are two basic numbers to consider when we want to calculate the wattage available from each style pedestal outlet: Volts and Amperes. Voltage is a measure of electrical pressure, and Amperes is a measure of available current flow. Ohm's law tells us that Volts times Amperes equals Watts.

- 20-amp outlet = 2,400 watts
- 30-amp outlet = 3,600 watts
- 50-amp outlet = 12,000 watts

Here are the quick calculations:

- If you multiply 20 Amps times 120 Volts you get 2,400 Watts.
- And 30 Amps times 120 Volts equals 3,600 Watts.
- But how does 50 amps times 120 volts equal 12,000 watts and not just 6,000 watts? That's because there are actually two separate 50-amp conductors in a "50-amp" shore power outlet. It probably should be called a 100-amp plug since that's how much amperage is really available.

After that it's just a matter of knowing the watts required by all of your electrical "stuff" and adding them together. All modern appliances have a tag that displays their wattage. You just add up everything you want to turn on at the same time and make sure you have enough wattage available from the shore power outlet. Since circuit breakers are only rated for 80% of their load capacity for continuous load, you need a little extra power available to make sure you don't trip a breaker accidentally.

Typical watt usage:

- Small Flat screen television – 50 watts
- Kids video game – 10 watts
- Laptop computer – 100 watts
- Desktop computer – 500 watts
- Hair dryer – 1,500 watts
- Toaster Oven – 1,500 watts
- Small Microwave Oven – 1,200 watts
- Incandescent light bulb – 40, 60 or 100 watts
- CFL (Compact Fluorescent Light) 13 watts
- Slow Cooker – 200 to 1,500 watts (low or high heat)
- Small space heater – 600 or 1,200 watts (low or high heat)
- Overhead LED Lights – 5 watts each
- Overhead Incandescent Lights – 20 watts each
- 15,000 BTU Air Conditioner – 2,000 watts running / 3,600 watts starting surge

This is why most modern RVs have at least a 30-amp shore power plug and all large RVs have a 50-amp plug. You can see that even a single toaster oven or hair dryer would use up more than half of the power available from a 20-amp shore power outlet. But you can run a hair dryer, microwave oven, toaster oven, plus an air conditioner and a bunch of lights all at the same time from a 50-amp pedestal outlet and still have power to spare.

So if you park your RV next to your house, you should consider having a real pedestal outlet installed by an electrician. That way you can run everything in your RV even while it's parked in your driveway. If you only plug into your house using a dog-bone adapter to hook into a 20-amp outlet in your garage, you may not even be able to run the air conditioner in your RV.

This information is provided via FB from Mike Sokol is an electrical and professional sound expert with 40 years in the industry and validated by our own Fred Brooks – the resident expert all thing motor homes.