THE DIFFERENCE BETWEEN WATTS & VA: THE ANSWER'S IN THE BEER

Ever wonder the difference between VA and Watts? I bet you have, particularly since it's a question we (happily) answer often. I admit it – it gets confusing. So, let me break it down for you:

Watts measures the real power drawn by the equipment (i.e. the actual power you're consuming).

Volt Amps (VA) is the "apparent power," or, to get technical, the product of the voltage applied to the equipment multiplied by the current draw. (i.e. the power you're paying for).

As a rule of thumb, the VA rating is always going to be greater than or equal to the watt rating. The ratio of watts to VA is called the power factor.

Again, we admit it gets confusing. And that's why we like to get beer involved.

Think about it this way:
The mug is always the same size, but the ratio of beer to foam is determined by the pour. I'm willing to bet you'd rather have more beer in your mug. In the same way, the lower the power factor, the lower the efficiency of the unit, and the lower the usage of available power.

While the UPS industry often works off a .6 power factor, APC has a .67 or higher standard on all of their single-phase UPS units. In efforts to be greener, APC is currently trying to move the power factor closer to 1, giving the unit the exact power it needs and saving energy at the same time. You'll notice in some of our units that the power factor is .7 or higher, particularly with the SURT models which include power factor correction.

SO, HOW IS THIS HELPFUL?
It's important to know when sizing your UPS. Let's use desktop computer as an example. On the nameplate, find the amperage (A) and voltage (V). Then, determine the VA by multiplying the V x A (likely 120 or 280). Now, you know the VA rating and can therefore purchase the correct UPS to support the unit.

WAIT, WHERE TO THE WATTS COME INTO PLAY?
Remember, efficiency, efficiency, efficiency. A unit with an output power capacity of 670 Watts / 1000 VA is more efficient then one with a capacity of 600 Watts / 1000 VA.

MUG CAPACAITY = APPARENT POWER (VA)
HEAD = REACTIVE POWER
BEER = AVAILABLE POWER (W)

REACTIVE POWER

VA

W

$$\text{POWER FACTOR} = \frac{\text{BEER (W)}}{\text{MUG CAPACITY (VA)}}$$