



Oven Industries, Inc.

Ohm's Law

VOLTS (E)

$$\text{Volts} = \sqrt{\text{Watts} \times \text{Ohms}}$$

$$\text{Volts} = \frac{\text{Watts}}{\text{Amperes}}$$

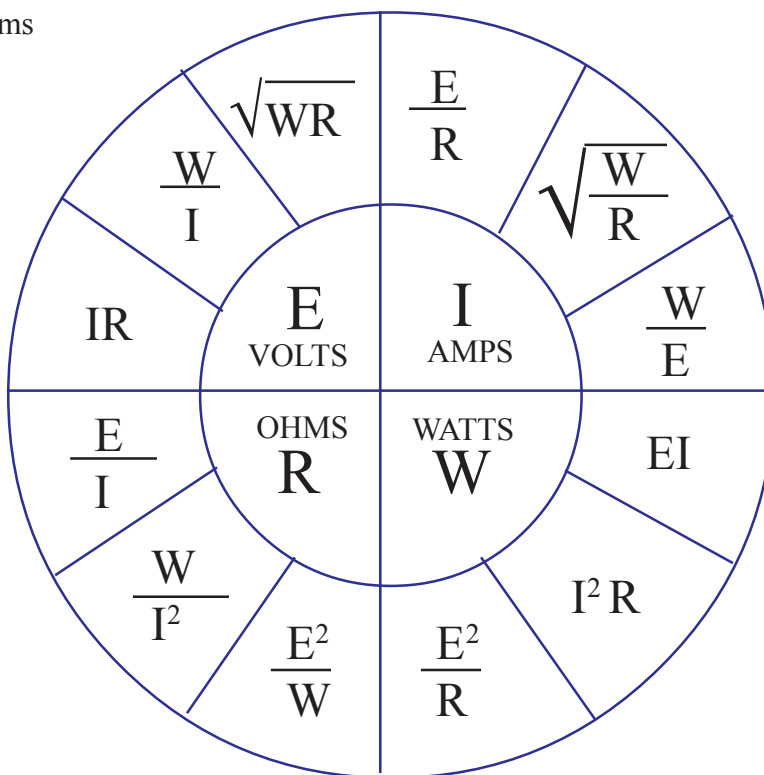
$$\text{Volts} = \text{Amperes} \times \text{Ohms}$$

AMPERES (I)

$$\text{Amperes} = \frac{\text{Volts}}{\text{Ohms}}$$

$$\text{Amperes} = \frac{\text{Watts}}{\text{Volts}}$$

$$\text{Amperes} = \sqrt{\frac{\text{Watts}}{\text{Ohms}}}$$



OHMS (R)

$$\text{Ohms} = \frac{\text{Volts}}{\text{Amperes}}$$

$$\text{Ohms} = \frac{\text{Volts}^2}{\text{Watts}}$$

$$\text{Ohms} = \frac{\text{Watts}}{\text{Amperes}^2}$$

WATTS (W)

$$\text{Watts} = \frac{\text{Volts}^2}{\text{Ohms}}$$

$$\text{Watts} = \text{Amperes}^2 \times \text{Ohms}$$

$$\text{Watts} = \text{Volts} \times \text{Amperes}$$

Wattage varies directly as ratio of voltage squared

$$W_2 = W_1 \times \left(\frac{E_2}{E_1}\right)^2$$

$$3 \text{ Phase Amperes} = \frac{\text{Total Watts}}{\text{Volts} \times 1.732}$$

WATT DENSITY CALCULATIONS

Band Heaters:

$$\text{watts/in}^2 = \frac{\text{Wattage}}{\text{Dia.} \times 3.1416 \times \text{Width}}$$

Cartridge & Tubular Heaters:

$$\text{watts/in}^2 = \frac{\text{Wattage}}{\text{Dia.} \times 3.1416 \times \text{Heated Length}}$$

Strip heaters:

$$\text{watts/in}^2 = \frac{\text{Wattage}}{\text{Heated Length} \times \text{Width}}$$