

There have been many questions asked regarding the methods used to calculate load levels for Load Bank Testing. The most common confusions are determining what amp rating to test by. Here are the basics.

The nameplate information is the place to start. First determine the generator rating (kW not KVA). The kW is the kilowatt capacity of the unit. Once you have this number, multiply by 1,000, this will then be the watt output of the generator. When testing with a resistive load bank, the load will be the unity power (1.0pf). To calculate the max amperage of the unit, you need to use the following formula:

$$\text{Watts (kW} \times 1000) \div \text{Line to Line Voltage} \div 1.732$$

(Square Root of 3) = Amps for 3 phase units only.

For single phase units follow this formula:

$$\text{Watt} \div \text{Line to Line Voltage} = \text{Amps.}$$
 Another method to use is to take the nameplate amps $\div$ nameplate power factor = resistive load amp rating. Here are some examples: A unit model D500FRX4 the kW is 500, the voltage is 277/480, 3 phase, and the power factor is .8, as stamped on the nameplate. The formula to use is $500 \times 100 = 500,000 \div 480 \div 1.732 = 601.43$. The amount of this load can be tested too with a resistive load bank is 601 amps. Here is a single-phase example: The nameplate tells us it is a 500kW, 120/240 single phase 1.0 power factor. The formula would look like this: $500,000 \div 240 = 2083$ amps, this is the max load with a resistive load bank.

This may be old news for some, but with new people working in the field, it is important to know and use this information.