



## Voltage, Current, and kVA Ratings for Multi-Output Supplies

A basic AC hipot rating might be 0 – 50 kVac @ 3 kVA, 60 mAac. It is rated for 0 – 50 kVac voltage output and can deliver up to 3 kVA of power at full voltage with full current. That equates to 60 mAac output current. The 60 mAac of current can be output at any output voltage setting from 0 – 50 kVac. Same with a DC hipot that may be rated for 80 kVdc @ 10 mAdc, capable of providing up to 10 mAdc current to a load with up to 80 kVdc applied across it. In both cases, they are *constant current* instruments: one current rating throughout the entire voltage range.

Many AC hipots have two or more output voltage settings, whether via two bushing outputs or one cable with a transformer tap selector switch, possibly to series or parallel two windings. The intent is to offer two different voltage range outputs both rated for the full kVA/power of the test set, usually for versatility to test multiple loads requiring different voltage and current ratings.

**Power = VA = Volts x Amps.** V and A are inversely proportional for a fixed VA rating. At the same VA (power) rating, if you halve the maximum voltage output, the current rating will need to double.

### Examples of Dual Output Hipot Ratings

**ALT-120/60:** Two *full kVA* output voltage settings each rated 7 kVA.

Output 1: 0 – 120 kVac @ 7 kVA = 58 mAac

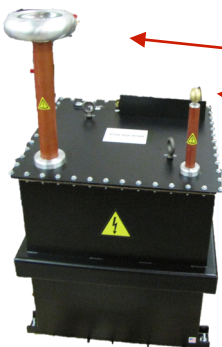
Output 2: 0 – 60 kVac @ 7 kVA = 117 mAac



**HPA-100/5020FC3:** Two *full kVA* output voltage settings each rated 20 kVA.

Output 1: 0 – 100 kVac @ 20 kVA = 200 mAac

Output 2: 0 – 50 kVac @ 20 kVA = 400 mAac



#### Don't undersize the hipot

When selecting an AC hipot model, the current draw of the load is dependent upon its capacitance. Know the maximum current (mAac) requirements needed from a hipot **at the test voltage level required**. When calculating the capacitance, be mindful of using the proper frequency, 50 Hz. or 60 Hz.

$$A = 2\pi fCV \quad A = \text{Amps} \quad C = \text{Capacitance in Farads} \quad V = \text{Test Voltage in Volts}$$

