



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

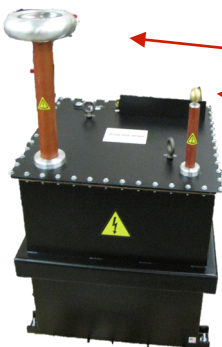
Output 2: 0 – 60 kVac @ 7 kVA = 117 mAac



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.

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

