



HVI - The World's Source for High Voltage Test Equipment

Advanced test equipment for high voltage proof and preventive maintenance testing of electrical apparatus hvinc.com

STATOR WINDING WITHSTAND TESTING AC vs. DC High Voltage Testing: Equipment Review

Stator Winding & Testing Specifications

4000 V, 400 hp 3 Ph., 60 Hz.

66 coils-bars/ph. x 3 = 198 coils

Test Voltage: 9 kVac (4 kV x 2 + 1000V)

Testing with DC Voltage

A DC voltage output hipot rated for 5 mAdc is adequate
Test current can be limited to < 5 mAdc with slow rate-of-rise

Testing with 50/60 Hz. AC

Test Current: Each coil/bar draws ~ 3.3 mAac @ 9 kVac

Test 1 phase: Current = 3.3 mAac x 66 bars = **218 mAac**

Test 3 phases: Current = 3.3 mAac x 198 bars = **654 mAac**

AC Hipot Rating = 5.9 kVA: 9 kVac x 654 mAac

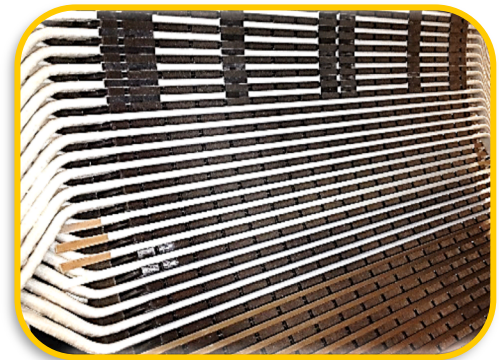
A 0 - 10 kVac @ 1 A, 10 kVA hipot is needed to test all 3 phases at once.

Hipot Choices: DC vs. AC

DC needs only 2 or 3 mAdc

AC kVA depends on coil μ Fs.

Example Coil Test



Actual Windings Tested

To Calculate mAac Current Draw
 $A = 2\pi fCV$ C = Farads V = Volts



PTS-15 DC Hipot/Megohmmeter

Rating: 0 – 15 kVdc @ 10 mAdc, 150 VA

Weight: 50 lb. (23 kg.)

Price: Approx. \$6,500.00



HPA-5010FC3 AC Dielectric Tester

Rating: 0 – 10 kVac @ 1 amp, 10 kVA

Weight: 390 lb. (177 kg)

Price: Approx. \$ 16,000.00

Can test 3 phases at once



PFT-103CM

Rating: 0 – 10 kVac @ .3 A, 3 kVA

Weight: 62 lb. (28 kg.)

Price: Approx. \$6,000.00

Can test one phase only

