

Vacuum Interrupter Testing



More than “Pass/Fail”, the purpose to check the integrity of the vacuum interrupter should include to estimate its lifespan based on its leakage rate.



1.Hipot check, simple, not enough

Traditionally, we use both AC and DC Hipot to check the integrity of vacuum interrupter by means of the relationship between the flashover voltage and the vacuum interrupter.

By AC check, such as 60KV Vacuum Bottle Tester, Hipotronics;

By DC check, such as 75KV VBT-75,Doble, VIDAR,Megger,

Since AC tester are cumbersome,big size and weight. DC vacuum tester is more preferred on the market.

For both AC and DC Hipot vacuum tester, they are simple and intuitional, however, their disadvantages are clear.

Test voltage gets higher and higher.Vanguard's first generation is 60KV, VBT 60, now its second generation is 75KV,VBT-75;

"Pass/Fail", the conclusion is just valid for current situation. How about a day later, a week later, a year later, 3-5 year later? No any prediction. Actually, Pass or Fail after a few years is more important for customers.

2.APT Power's solution for vacuum interrupter testing

Similar to Doble, we are DC test;

Different from Doble, we are not simple DC Hipot test;

What is the difference?

Structure and Principle: Ionized charge sampling is introduced so that those electric charges inside of vacuum chamber are more active and easily detected;

Higher accuracy so that is is possible to predict vacuum interrupter's life by its leakage rate. Leakage rate is available by different date testing;

Lower relevance between test voltage and Vacuum CB' rated voltage;

Providing we regarded Hipot tester as transitional product, then we provide the final and revolutionary solution.

3.What is the specifics

3.1 Application

Suitable for 10-35KV vacuum interrupter test;

3.2 Main Specifications

Test range:1x10⁻⁵-1x10⁻¹ Pa,

Test error :≤10%(1x10⁻⁴-1x10⁻¹ Pa)

Resolution: 10⁻⁵

Test Voltage: DC10KV,17KV,28KV which is applied between the moving and static contact of Circuit breakers;

Magnetic voltage :350Vdc, Magnetic current up to 50A by extra magnetic coil;

Power Input: 220V,50/60Hz

3.3 How judge a vacuum interrupter is qualified or not

3.3.1 Visual inspection

The inside surface of vacuum interrupter is painted by barium (Ba) film. It is mirror in normal condition.

Once it is milk white, it means the vacuum interrupter is in poor condition;



3.3.2 Threshold values

"Pass/Fail", less than 0.066 Pa, Pass; More than 0.066 Pa, fail. 6.6×10^{-2} Pa is used for the field check usually;

1.33×10^{-3} Pa for vacuum chamber acceptance at its manufacturer;

For test value is near to 0.066 Pa, leakage test is recommended so as to predict its life;

Once the press of vacuum chamber is equal to atmospheric pressure, the vacuum chamber will be broken down. At the same time, its input circuit is protected.

4. Two Models for vacuum interrupter test

MVC, suitable for 10KV Vacuum interrupter;

MVB, suitable for 10KV-35KV even 72.5KV Vacuum interrupters