

DIELECTRIC TESTING OF HIGHLY CAPACITIVE LOADS

Modern manufacturing techniques have enabled compact Resonant Test Systems to be constructed for easy transport into substation environments for onsite testing.

Advantages of using a Resonant Test Set to test highly capacitive loads include greatly reduced input power requirements since a tuned circuit is achieved, in the event of a breakdown in the test sample less fault current is available since the circuit becomes de-tuned. Systems can be provided in many configurations to meet your testing application. This includes skid mounting for generator testing, trailer mounting for field applications or stationary mounting in a High Voltage Lab. Both tank type and cascade type reactors are also available to properly match your application.

Modern manufacturing techniques have enabled compact Resonant Test Systems to be constructed for easy transport into substation environments for onsite testing. A typical skid mounted system would include controls, input regulator, exciting transformer and tuning reactor.

STATE-OF-THE-ART CONTROL SYSTEM

The controls provide all the necessary metering and instrumentation for monitoring, control and adjustment.

A Programmable Logic Controller (PLC) is at the heart of the state-of-the-art control system.

The regulating transformer is the first power section of the Resonant Test System. This is used to regulate the supply voltage from near-zero up to the magnitude of the supply voltage and,

ultimately, the high voltage output. This function is performed by a variable auto-transformer. For the power requirements of the skid mounted system the classic toroidal design is an excellent choice.

ISOLATION TRANSFORMER

The Exciter transformer is electrically located between the Regulator and the High Voltage Reactor.

Its primary function is to step up the magnitude of voltage to the Reactor and is built as an isolation transformer with double shielded windings to reduce interference from the incoming supply.

The High Voltage Reactor is essentially a variable core oil insulated reactor which can be adjusted until its inductance is equal to the capacitive reactance of the test specimen. Two types of reactors are typically available: Horizontal Core (used in cascade cylinder type designs.) and Vertical Core (used in grounded steel tank type designs.)


The movement of the moveable core from the closed position to the maximum open position provides the unit with a minimum tuning range of 20:1. Tuning ranges of 25:1 are very typical.

This means that a reactor which is designed to resonate at a specific capacitive value with the gap at its closed position will also resonate with a capacitive load which is 20 times this value with the gap fully open.


Compact 50 kVolt Resonant Test Set

**MODEL RTS8TC50-500X
AC SERIES/PARALLEL RESONANT TEST SYSTEM**


Input	240 VAC, 50 Hz, 1Ø, 93 amps, 23 KVA
Output	
Maximum power	500 KVA
Maximum voltage	50 KVAC
Duty Cycle	1 hour on/ 1 hour off
Design Q	This system is designed to operate at a system quality factor as low as 25
Partial Discharge:	Less than 5 pC at 50 KV



Reactor 25,40&50 kV Taps
99cm W x 127cm L x 137cm H (approx.)
1320kg. (approx.)



Controls/Regulator/Exciter
in one cabinet
100cm W x 75cm D x 130cm H (approx.)
340kg. (approx.)



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