Series-resonant AC Hi-pot Test Products

- Significantly lower the requirement on test power input
- Much smaller and lighter than the traditional test with transformers
- Suits for high-voltage level test objects and long-distance power cable on-site test
Series-resonant AC Hi-pot Test Products

Principle

- Test voltage with resonant frequency generated from the VF power supply, through the exciter transformer, start the resonance in the LC circuit composed by the test object and test system, and generate test high voltage.
- High voltage and large current are generated by resonance of the test object and test system, input power requirement decided only by the active part; only 1/Q of testing capacity is needed on the input power (Q also called as Quality Factor, normally within 30~130 for this system).
- High voltage and arcing immediately disappears once breakdown happens on the test object without any possibility of recovering over-voltage.

![Diagram of Series-resonant AC Hi-pot Test Products]

Legend:
- 1 Rectifier
- 2 PMW Regulator
- 3 Inverter
- 4 Multi-tap Exciter
- 5 Inductor
- 6 Voltage-divider
**PWM Regulated Power Supply Main Feature**

- IGBT power module used, reduced size of the VF power supply, rectangular waveform tunable, sine-wave formed in resonance
- Data saving, re-tracing; computer-interface, printing available
- Multi-mode: freq-auto-tune & voltage
  - manual-raise, freq-manual-tune & voltage-manual-raise,
  - freq-auto-tune & voltage-auto-raise
- Intelligent-controlled voltage raising, variable speed raising to test voltage, anti-over-voltage by test voltage setting
- Multi-protection: over-voltage, over-current, over-heat, arcing and so on; withstand surge current from discharging
- Op-fiber cable connection for the safety consideration

**Dry-type Inductor**

- Epoxy-glass wound cylinder structure, copper winding, vacuum casted, with water-resist layer outside. Portable and easy to assemble
- For AC hi-pot test of electrical equipment such as GIS, switchgears, instrument transformers, transformer neutral point that is no more than 110kV, and power cable no more than 35kV

**Oil-type Epoxy-Shell Inductor**

- Epoxy-glass wound cylinder structure, copper winding, vacuum dried, self-cooling with oil filled. Separating magnetic panel to prevent eddy-current
- Rigid frame stabilized winding with the cylinder, anti-heat/shock/corrosion rubber applied, suits for long-distance transportation
- Oil-proof rubber and non-woven fiber compound basin-type oil slick, for long-term use, tolerant for oil level change
- Multi-tap, for different test requirement
- Suits for AC hi-pot of high voltage electrical equipment and long distance power cables
1200kV Series-resonant AC Hi-pot System

- 1x HVFRF-200kW VF power supply
- 1x ZB-200kVA exciter transformer
- 4x HVDK-300kV/7A/150H HV inductor
- 1x HV-1200kV AC voltage measure system

Application
For AC hi-pot test of electrical equipment such as GIS, switchgears, instrument transformers, transformer neutral point that is no more than 1000kV

Customers
Huabei/Jiangsu/Jiangxi Electric Power Research Institute, and Gansu/Guizhou Transmission Substation

750kV Series-resonant AC Hi-pot System

- 1x HVFRF-200kW power supply
- 1x ZB-200kVA exciter transformer
- 3x HVDK-250kV/6A/200H HV inductor
- 1x HV-750kV AC voltage measure system

Application
For AC hi-pot test of electrical equipment such as GIS, switchgears, instrument transformers, and power transformers that are no more than 500kV; and 2~3km 220/110kV power cables
500kV Series-resonant AC Hi-pot System

- 1x HVFRF-100kW Power Supply
- 1x ZB-100kVA exciter transformer
- 2x HVDK-250kV6A200H HV inductor
- 1x HV-500kV AC voltage measure system
- 1x trailer-type test system (optional)

Application
For AC hi-pot test of electrical equipment such as GIS, switchgears, instrument transformers, power transformers, and 1–2km power cables that are no more than 220kV rated

260kV Series-resonant AC Hi-pot System

- 1x HVFRF-50kW Power Supply
- 1x ZB-50kVA exciter transformer
- 2x HVDK-130kV5A130H HV inductor
- 1x HV-300kV AC voltage measure system

Application
For AC hi-pot test of electrical equipment such as GIS, switchgears, instrument transformers, power transformers, and 110kV/2km power cables that are no more than 220kV rated

230kV/30A*2 Series-resonant AC Hi-pot Test System

- 1x HVFRF-200kW VF power supply
- 1x ZB-200kVA exciter transformer
- 2x HVDK-230kV/30A/30H HV inductor
- 1x HV-250kV AC voltage measure system

Application
Suits for AC hi-pot of 220kV/8km, 110kV/10km power cables

Customers
Chengdu/Dalian/Shantou/Zhengzhou Administration of Power Supply, Hunan Transmission Substation...
### On-site Series-resonant Test with HVFRF Frequency Auto-tune Power Supply (5~30kW)

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<tr>
<th>VF Power Supply</th>
<th>Exciter Transformer</th>
<th>Quantity</th>
<th>Inductor</th>
<th>Quantity</th>
<th>Voltage Divider</th>
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