



Series-resonant AC Hi-pot Test Products

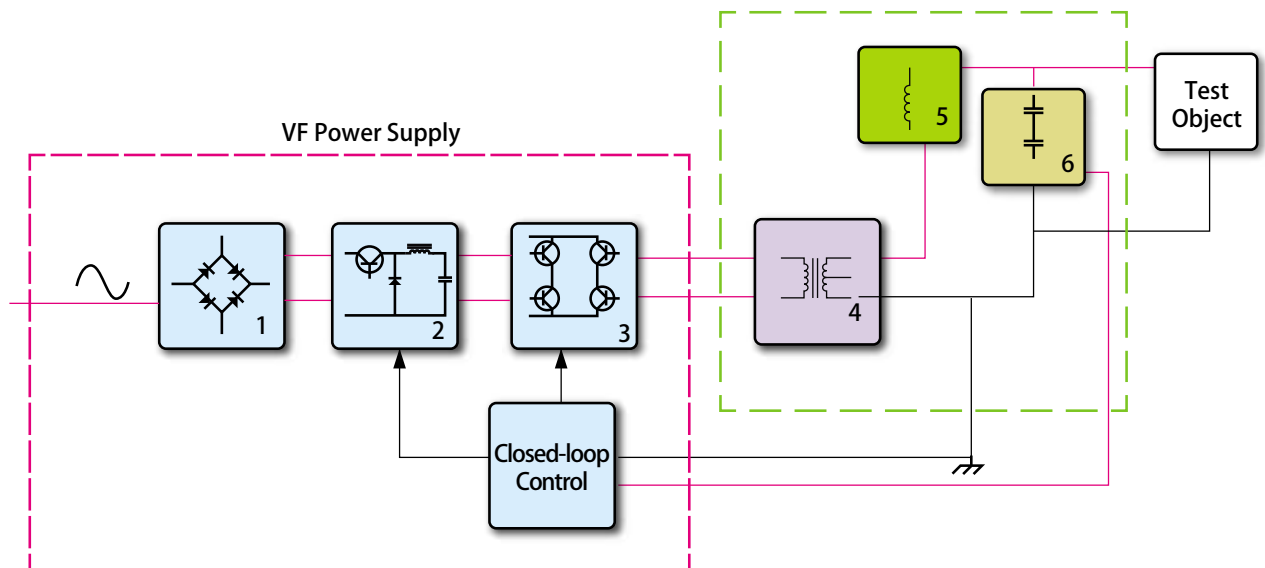
- Significantly lower the requirement on test power input
- Much smaller and lighter than the traditional test with transformers
- Suits for high-voltage level test objects and long-distance power cable on-site test

Series-resonant AC Hi-pot Test Products

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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



- 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, retracing; 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-250kV6A200H 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

Our Clients:

Electric Power Research Institutes:

State Grid Electric Power Research Institute, Huabei, Beijing, Tianjin, Hebei, Shan'xi, Mengdong, Inner Mongolia, Heilongjiang, Jilin, Liaoning, Huadong, Shandong, Jiangsu, Anhui, Zhejiang, Fujian, Shaan'xi, Ningxia, Gansu, Qinghai, Xinjiang, Hubei, Henan, Jiangxi, Sichuan, Chongqing, Tibet, Hunan, Guangdong, Guangxi, Guizhou, Yunan Electric Power Research Institute

Extra-high Voltage Power Transmission Company:

China Southern Power Grid Extra-high Voltage Power Transmission Company, Beijing, Hebei, Shan'xi, Shandong, Hubei, Qinghai, Shanghai, Chongqing, Hunan Power Grid Extra-high Voltage Power Transmission Company

Power Generation Groups:

Huaneng Electric Power Research Institute, CPI Minghua Power Technology & Engineering Co., Ltd., TGP Hydroelectric Power Station, Gezhouba Hydropower Station, Inner Mongolia Tuoketuo Power Station, Zhejiang Beilun Power Station, Fujian Houshi Power Station, Shandong Zouxian Power Station, Shanxi Shentou No. 2 Power Station, Hebei Xingtai Power Station, Jiangsu Jianbi Power Station, Datang Douhe Power Station and Henan Yaomeng Power Station.

Power Transmission & Substation Company:

Beijing, Hebei, Tianjin, Heilongjiang, Henan, Jiangsu, Gansu, Qinghai, Xinjiang, Jiangxi, Zhejiang, Guangdong Power Transmission & Substation Engineering Company

Electric Power Supply Company:

Beijing, Tianjin, Tangshan, Baoding, Zhangjiakou, Taiyuan, Changzhi, Ererduosi, Shenyang, Dalian, Changchun, Jinan, Qingdao, Binzhou, Jining, Weihai, Nanjing, Hefei, Wenzhou, Zhoushan, Nanchang, Ganzhou, Fuzhou, Xiamen, Zhengzhou, Luoyang, Jiyuan, Wuhan, Chengdu, Chongqing, Guiyang, Guangzhou, Foshan, Nanning, Wulumuqi, Lanzhou, Dingxi, Xining, Yinchuan Electric Power Supply Company



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...



Series-resonant AC Hi-pot Test Products



On-site Series-resonant Test with HVFRF Frequency Auto-tune Power Supply (5~30kW)

VF Power Supply	Exciter Transformer	Quantity	Inductor	Quantity	Voltage Divider	Test Object		
						10kV Power Cable	35kV Power Cable	Others
HVFRF-5kW	ZB-5kVA	1	HVDK-22kV/2A/42H	3	HV-60kV/300pF	3kM	1kM	-
HVFRF-10kW	ZB-5kVA	2	HVDK-22kV/2A/42H	6	HV-60kV/300pF	6kM	2kM	-
HVFRF-5kW	ZB-5kVA	1	HVDK-27kV/1A/130H	4	HV-120kV/2000pF	2kM	1kM	Electrical equipment such as power transformers and switchgears that are no more than 35kV rated
HVFRF-20kW	ZB-10kVA	2	HVDK-27kV/1A/130H	10	HV-220kV/1000pF	5kM	2.5kM	Electrical equipment such as power transformers, GIS, switchgears, and instrument transformers that are no more than 110kV rated; 500m 110kV400mm ² power cables
HVFRF-10kW	ZB-5kVA	2	HVDK-27kV/2A/130H	4	HV-60kV/300pF	4kM	2kM	-
HVFRF-30kW	ZB-15kVA	2	HVDK-27kV/2A/130H	10	HV-220kV/1000pF	8kM	5kM	Electrical equipment such as power transformers, GIS, switchgears, and instrument transformers that are no more than 110kV rated
HVFRF-20kW	ZB-10kVA	2	HVDK-22kV/2A/42H	4	HV-60kV/300pF	4kM	1kM	Generating sets (output voltage≤27V, Capacitance 0.15~0.29uF; test voltage 35kV)