

YL series

SF6 Gas Standard Capacitors



For very high voltages a grad with discrete capacitor elements achieves a liner field distribution. These results in higher voltage withstand capability even at humidity levels up to 95% without condensation. We use special stainless steel to permit the prefect temperature and voltage coefficient stability.

The capacitor is provided with a top electrode which allows partial discharge free interconnections to the other elements of the HV circuit.

The SF6 insulated standard capacitor is designed for both indoor service or outdoor service. The standard capacitors of the series YL are used for:

- ◆ Exact measurements of the capacitance and tan delta
- ◆ Exact measurements of AC voltages (AC divider) in the industrial frequency range (with add. internal electrode or add. secondary part).

Insulated Standard Capacitors is an Indispensable instrument in every modern high-voltage laboratory and test field where it occupies a wide range of important functions.

The SF6 insulated standard capacitor is used as capacitance standard in measuring bridge Circuits to measure the dielectric dissipation Factor $\tan\delta$ of all types including cables, capacitors, bushings, instrument transformers and power transformers. Further-more, It also can be used as high-voltage capacitor for voltage divider circuits of high-voltage transformer test.

The YL series standard capacitors can also together with electronics low voltage unit to be the electronics voltage divider for PT and CVT calibration. One set of electronics voltage divider can be instead of a number of the traditional standard instrument transformers.

Over 20 years' experience, Samgor has sold out over 100,000 units difference voltage level standard capacitors over the world, and have a honor to become the most reliable and innovative manufactory in standard capacitor field. In the meantime, Samgor also keep the highest voltage world record of standard capacitor till now.



Design:

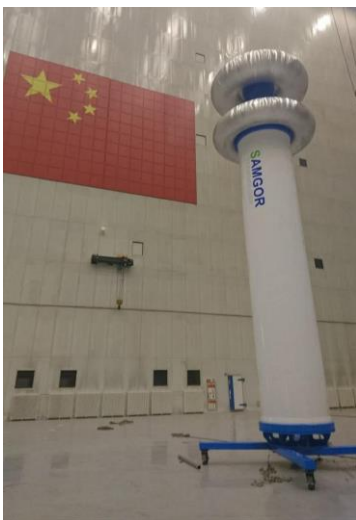


Based on 25 years of test equipment manufactory experience, during the design stage, we have developed two different standard capacitor structures. For the standard capacitor which below 800kV, traditional design is be used, which is more compact. Compared with the international similar products, our size is only 1/2 to 1/3 of them.

800 kV and above standard capacitor we are using the new internal capacitance voltage balance structure, it can make the external insulation dielectric strength more smooth, it can increase working capacity in high humidity environment. In the same time, an additional coupling capacitor is included, which can completely replace the coupling capacitor of series resonance and test transformer, and greatly reduce the laboratory space demand.

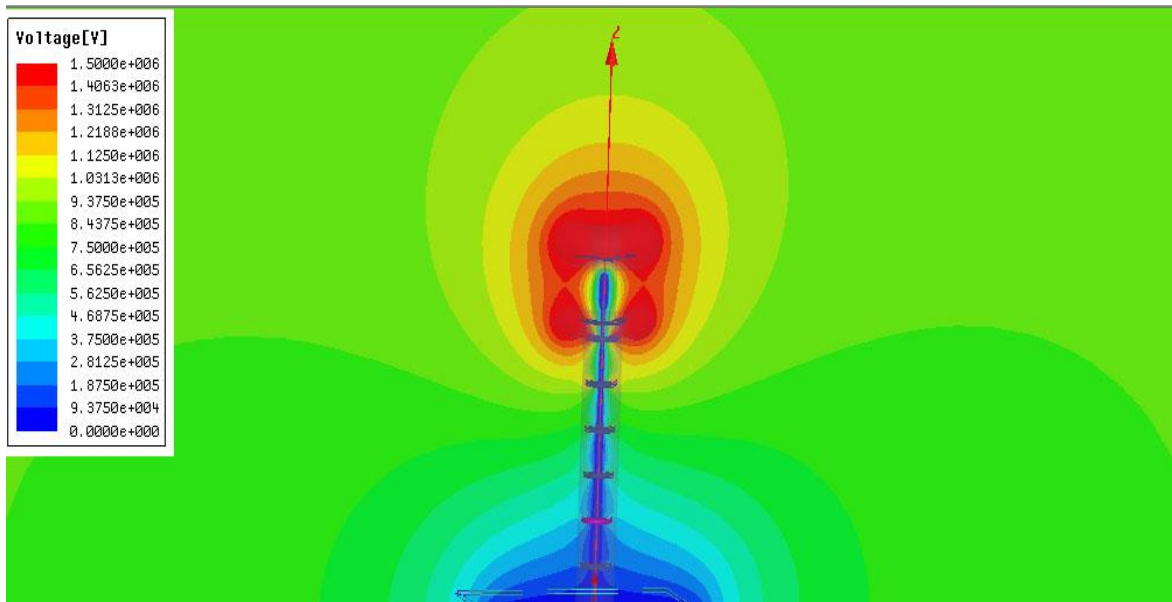
Using standard capacitor ultra-low dielectric loss values and linearity of capacitance, together with the electronic low voltage arm, it can be a perfect substitute of traditional electromagnetic voltage transformer, it call electronics voltage divider, it can use a standard electronic voltage divider instead of several sets of electromagnetic voltage transformer, not only increasing the convenience and accuracy of test grades, and greatly reduce the cost at the same time.

The standard capacitor as capacitance standard, the accuracy and stability of capacitance is very important. All electrodes in a high standard capacitor are made of special stainless steel, which ensures excellent temperature and voltage stability. The pressure of the SF6 gas is filled with pressure, ensuring that it has excellent dielectric loss. The standard capacitor is equipped with dual shielding structure to ensure that the stray capacitance is worth affecting the standard capacitance. Also it is suitable to most type of the C&Tan delta test set.

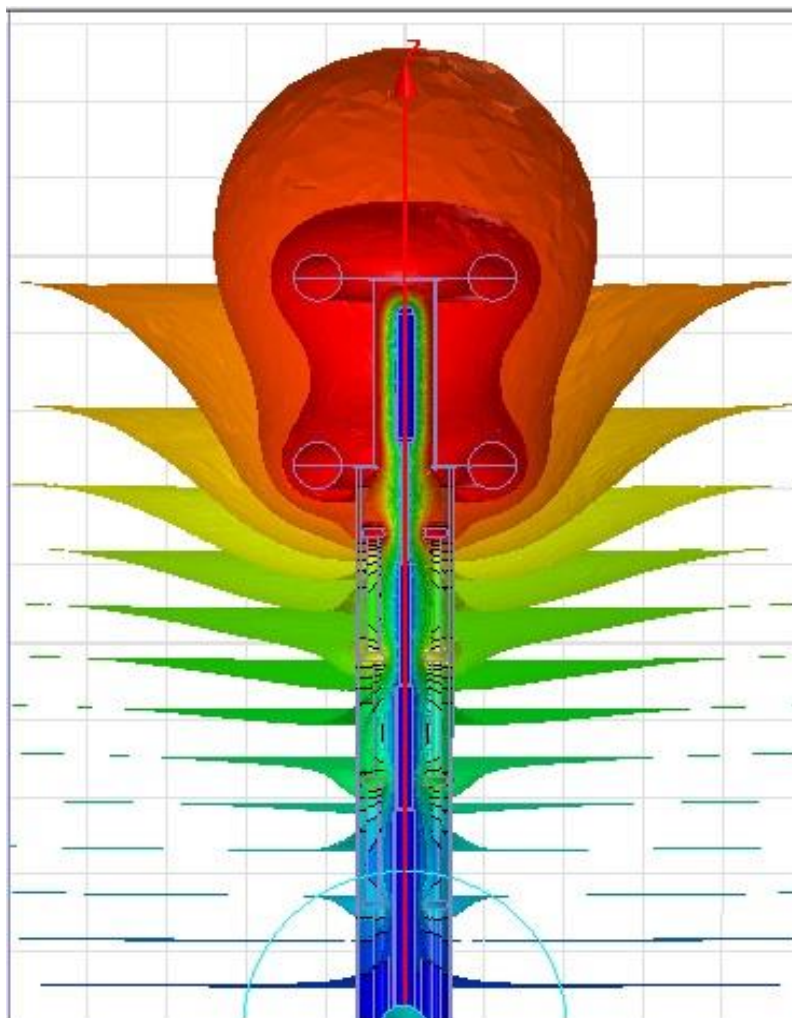


Because internal SF6 filled, inflatable seal processing become very important, so all the internal sealing section all use double sealing treatment, divided into radial and axial double seal, at the same time, through strict test leakage, ensure pressure leakage is less than 0.25% in one year. The pressure gauge use the German brand of WIKA, which is regarded as the German brand of DILO, with the pressure not enough alarm function to guarantee the world class quality.





1500kV Standard Capacitor Electric Field Simulation (3D)



1500kV Standard Capacitor Electric Field Simulation (2D)

Technical Data

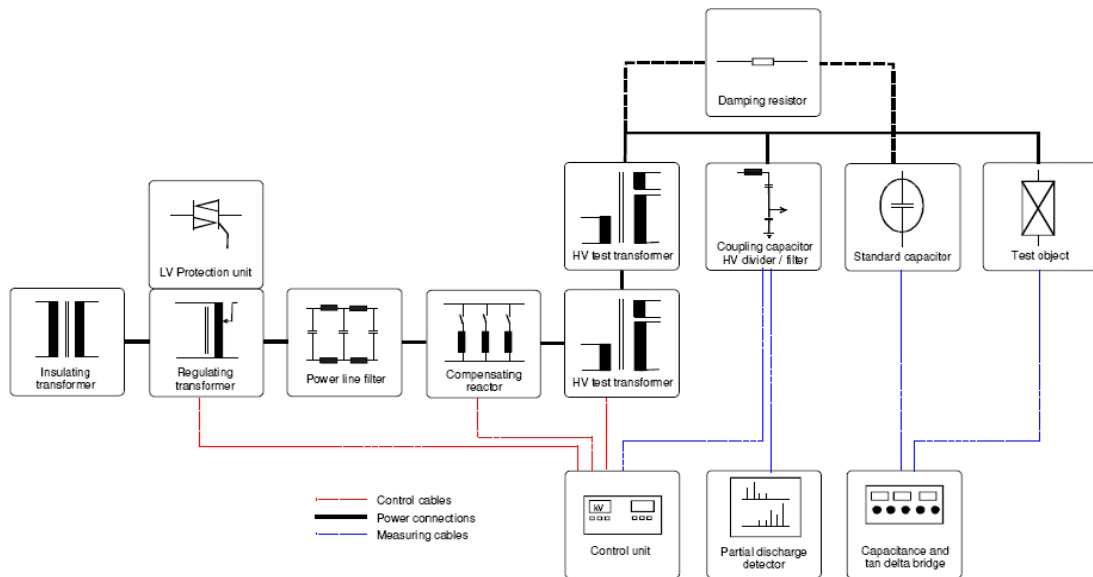
Type	YL10-50 /100	YL30-100 /1000	YL100-50 /100	YL200-5 0 /100	YL300-5 0 /100	YL400-5 0 /100	YL500-5 0 /100	YL600-5 0 /100	YL800-5 0/100	YL1000-30 /50	YL1200-30 /50	YL1600-30 /50
Rated Voltage	10kV	30KV	100kV	200kV	300kV	400kV	500kV	600kV	800kV	1000kV	1200kV	1600kV
Test Voltage	15KV	36KV	120kV	240kV	360kV	480kV	600kV	660kV	880kV	1100kV	1320kV	1760kV
Rated capacitance	50/100pF F	100 /1000pF	50/100pF	50/100pF F	50/100pF F	50/100pF F	50/100pF F	50/100pF F	50/100pF F	30/50pF F	30/50pF F	30/50pF F
Tolerance of capacitance	±0.5%	±0.5%	< ±0.5%	< ±0.5%	< ±0.5%	< ±0.5%	< ±0.5%	< ±0.5%	< ±1%	< ±1%	< ±1%	< ±1%
tan δ C12	<1 x10 ⁻⁵	<1 x10 ⁻⁵	<1 x10 ⁻⁵	<1 x10 ⁻⁵	<1 x10 ⁻⁵	<1 x10 ⁻⁵	<1 x10 ⁻⁵	<1 x10 ⁻⁵	<1 x10 ⁻⁵	<1 x10 ⁻⁵	<1 x10 ⁻⁵	<1 x10 ⁻⁵
Frequency drift	< 1x10 ⁻⁵	< 1x10 ⁻⁵	< 1x10 ⁻⁵	< 1x10 ⁻⁵	< 1x10 ⁻⁵	< 1x10 ⁻⁵	< 1x10 ⁻⁵	< 1x10 ⁻⁵	< 1x10 ⁻⁵	< 1x10 ⁻⁵	< 1x10 ⁻⁵	< 1x10 ⁻⁵
PD Level	< 2pC	< 5pC	< 5pC	< 5pC	< 5pC	< 5pC	< 5pC	< 5pC	< 10pC	< 10pC	< 10pC	< 10pC
Nominal pressure of SF6 gas	350±50 kPa	350±50 kPa	350±50 kPa	350±50 kPa	350±50 kPa	350±50 kPa	350±50 kPa	350±50 kPa	350±50 kPa	350±50 kPa	350±50 kPa	350±50 kPa
Operating temperature	-5~+45 °C	-5~+45°C	-5~+45°C	-5~+45°C	-5~+45°C	-5~+45°C	-5~+45°C	-5~+45°C	-5~+45°C	-5~+45°C	-5~+45°C	-5~+45°C
Height above sea level	< 2000m	< 1000m	< 1000m	< 1000m	< 1000m	< 1000m	< 1000m	< 1000m	< 1000m	< 1000m	< 1000m	< 1000m
Relative humidity	< 95%	< 95%	< 95%	< 95%	< 95%	< 95%	< 95%	< 95%	< 95%	< 95%	< 95%	< 95%
Temperature coefficient	3x10 ⁻⁵ /°C	3x10 ⁻⁵ /°C	3x10 ⁻⁵ /°C	3x10 ⁻⁵ /°C	3x10 ⁻⁵ /°C	3x10 ⁻⁵ /°C	3x10 ⁻⁵ /°C	3x10 ⁻⁵ /°C	3x10 ⁻⁵ /°C	3x10 ⁻⁵ /°C	3x10 ⁻⁵ /°C	3x10 ⁻⁵ /°C
Pressure coefficient	2.2x10 ⁻³ /kPa	2.2x10 ⁻³ /kPa	2.2x10 ⁻³ /kPa	2.2x10 ⁻³ /kPa	2.2x10 ⁻³ /kPa	2.2x10 ⁻³ /kPa	2.2x10 ⁻³ /kPa	2.2x10 ⁻³ /kPa	2.2x10 ⁻³ /kPa	2.2x10 ⁻³ /kPa	2.2x10 ⁻³ /kPa	2.2x10 ⁻³ /kPa
Voltage drift (0...UN)	< 3x10 ⁻⁵	< 3x10 ⁻⁵	< 3x10 ⁻⁵	< 3x10 ⁻⁵	< 3x10 ⁻⁵	< 3x10 ⁻⁵	< 3x10 ⁻⁵	< 3x10 ⁻⁵	< 3x10 ⁻⁵	< 3x10 ⁻⁵	< 3x10 ⁻⁵	< 3x10 ⁻⁵

(Eg: We also can produce the standard capacitors you're your special request.)

BASIC SCOPE OF SUPPLY

- 1 standard capacitor with top electrode
- 1 mobile base frame / air cushion
- 1 instruction manual
- 1 test report / calibration report

Common C& Tan delta Test Block Diagram With Test Transformer



CALIBRATION

Our basic standard for calibrating each standard capacitor is a XIHARI (China) calibrated internal standard. A standard capacitor should be re-calibrated every year. Samgor can provide these services on-site.

ROUTINE TESTS IN THE FACTORY

Normally, the capacitance, tan d, and partial discharge values are tested before and after the 1.1 Un over-voltage test.

TRANSPORTATION

Usually, the capacitors having a rated voltage of less than 800kV are shipped with their rated SF6 pressure and are therefore ready for immediate use.

For higher voltages the internal pressure is reduced to 120 kPa (absolute) and must be pressurized on-site after installation.

ACCESSORIES (NOT INCLUDED)

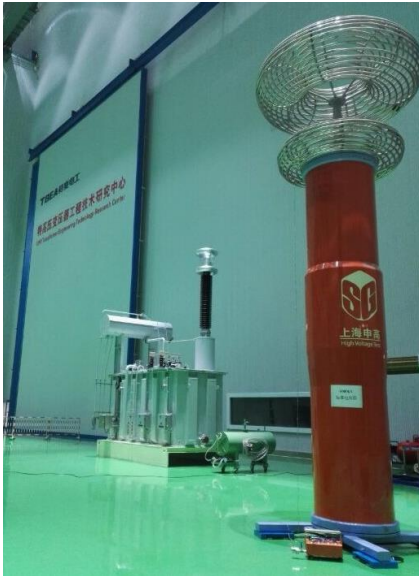
SF6 filling device, including:

- 1 SF6 filling device with ... kg of SF6 and 1 connection hose with adapted fitting
- Set of HV connections
- Secondary part for voltage measurements type
- Air Cushion

SPECIAL VERSIONS

- Additional capacitance C13 for voltage measurement

CUSTOMER REFERENCE





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