

CDY Series

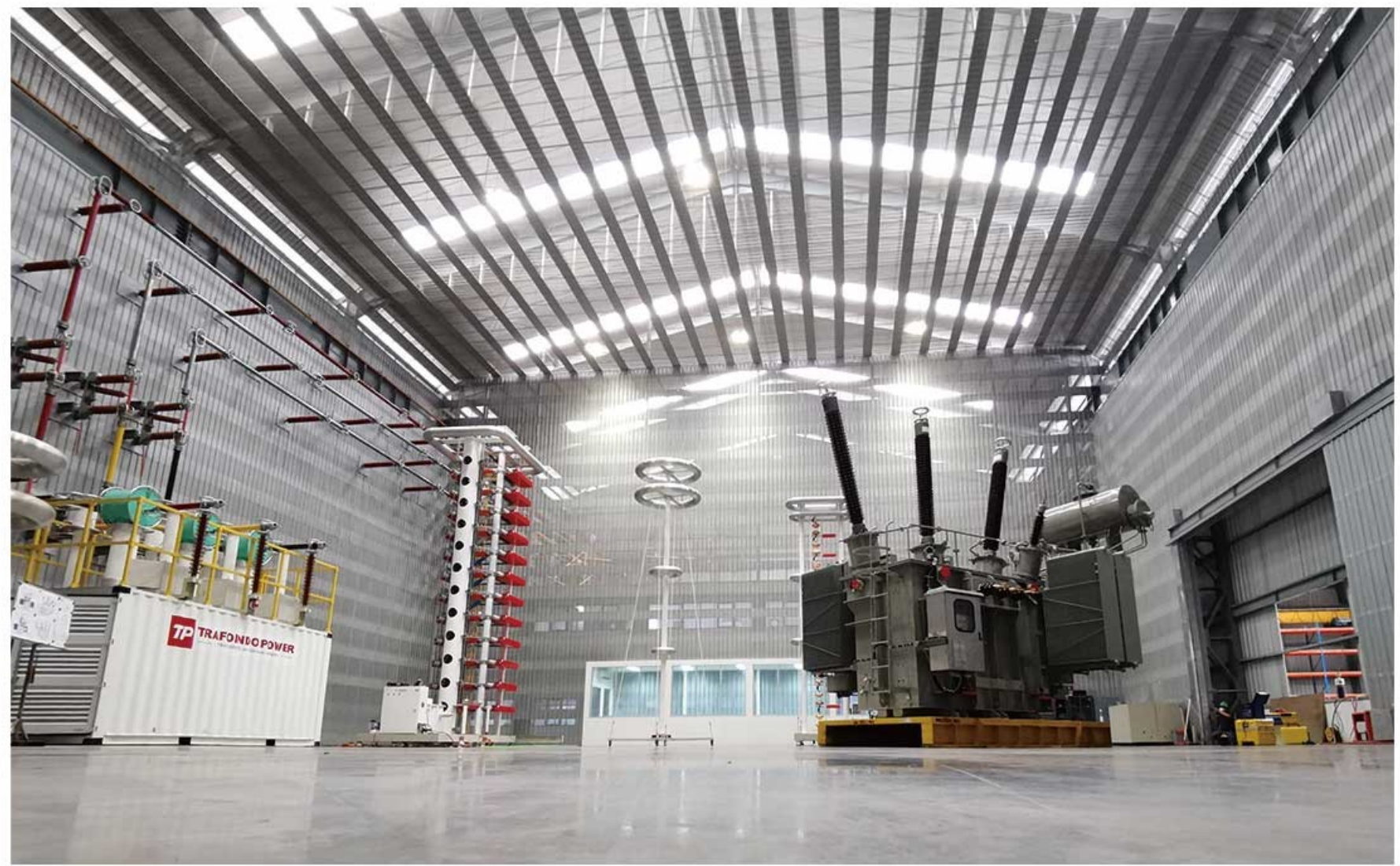
HV IMPULSE TEST SYSTEMS



- ✓ Lightning Impulse
- ✓ Chopping Lightning Impulse
- ✓ Switch Impulse
- ✓ Impulse Current Waveform
- ✓ Fast Transient

CDY Series

HV IMPULSE TEST SYSTEMS



Brief

CDY HV Impulse Test Systems are used for impulse voltage testing of transformers, cables, gas-insulated switchgears (GIS), arresters, and other high-voltage devices. The test systems generate lightning impulse voltage (LI, 1.2/50 μ s), chopping lightning impulse voltages (LIC, front time 1.2 μ s, front, crest or tail chopped), and switching impulse voltage (SI, 250/2500 μ s) in accordance with IEC 60060-1, as well as IEC 60076-3 for transformers, and IEC 62067, 60840 and 60502-1 for cables). By adding extra components, our impulse test system also can generate steeping wave (SWI, >2500kV/ μ s) and impulse current (IC, 4/10 μ s, 8/20 μ s).

CDY HV Impulse Test Systems are available for factory testing from 10 kV to 7200 kV (LI) / 4800 kV (SI), onsite testing from 10 kV to 3000 kV (LI) / 2000kV (SI).

Samgor offer four series of CDY HV Impulse Test System, there are CDYS, CDYM, CDYQ, CDYH. They have their own unique characteristics, such as structure, working condition, voltage each stage, automation level.

Advantage

- ✓ High efficiency of LI and SI up to 90% (CDYQ,M);
- ✓ Wide synchronization range up to 40% (CDYQ,M);
- ✓ Compact structure provides very low internal inductance;
- ✓ Strong structure allow delivery by whole unit ;
- ✓ Pneumatic grounding device makes the grounding loop much quick and simple less than 2 seconds;
- ✓ All resistors are designed same size with different resistance, so as to get different combination;
- ✓ Optical fiber connection prevents the control & measuring system from EMC influence ;
- ✓ Automatic PLC control and 12/14 bit high accuracy and 100Ms/S high speed impulse analyzer (Also available Dr.Strauss impulse analyzer);

Applications:

- ◆ Shunt reactors
- ◆ Power transformers
- ◆ Distribution transformers
- ◆ Instrument transformers
- ◆ Cables
- ◆ Bushings
- ◆ Arresters(Impulse current tests)
- ◆ Insulators
- ◆ GIS and air-insulated breakers
- ◆ R&D

Main Components:

- ◆ Impulse Generator (CDYS-1200kV Max, CDYM-3000kV Max, CDYQ-7200kV Max, CDYH-7200kV Max)
- ◆ DC Charging Device (100kV/200kV)
- ◆ Weak Damped Voltage Divider
- ◆ Resistive Voltage Divider
- ◆ Standard Capacitive Voltage Divider
- ◆ Digital Impulse Control System
- ◆ Digital Impulse Measuring & Analyzer System
- ◆ Multiple Chopping Gap
- ◆ Glaninger Circuit
- ◆ Overshoot Compensation Device
- ◆ Sphere Gap
- ◆ Load Capacitor
- ◆ Adjustable Inductor Device
- ◆ Measuring Shunt
- ◆ Rogowski Winding
- ◆ Copper Belt
- ◆ Air Cushion
- ◆ Grounding Bar



Feature of CDYS Model:



- ◆ 300kV to 1000kV with energy from 5kJ to 200kJ;
- ◆ 100kV each stage;
- ◆ Simple structure, easy to install and commission;
- ◆ High efficiency >90% (LI), low inductance;
- ◆ Suitable for routine test/ type test upon middle voltage class equipment (35kV-110kV class);

Feature of CDYQ Model:



- ◆ 300kV to 7200kV with energy from 5kJ to 720kJ;
- ◆ 100kV or 200kV each stage;
- ◆ Dry type impulse capacitors;
- ◆ Advance structure, air pressure gap used, suitable for high pollution condition;
- ◆ Remote changing stage of charging and discharging;
- ◆ Synchronization range >40%;
- ◆ High efficiency >90% (LI), >90%(SI), very low inductance;
- ◆ Suitable for routine test/ type test upon high voltage class equipment (35kV-1000kV class);

Feature of CDYH Model:



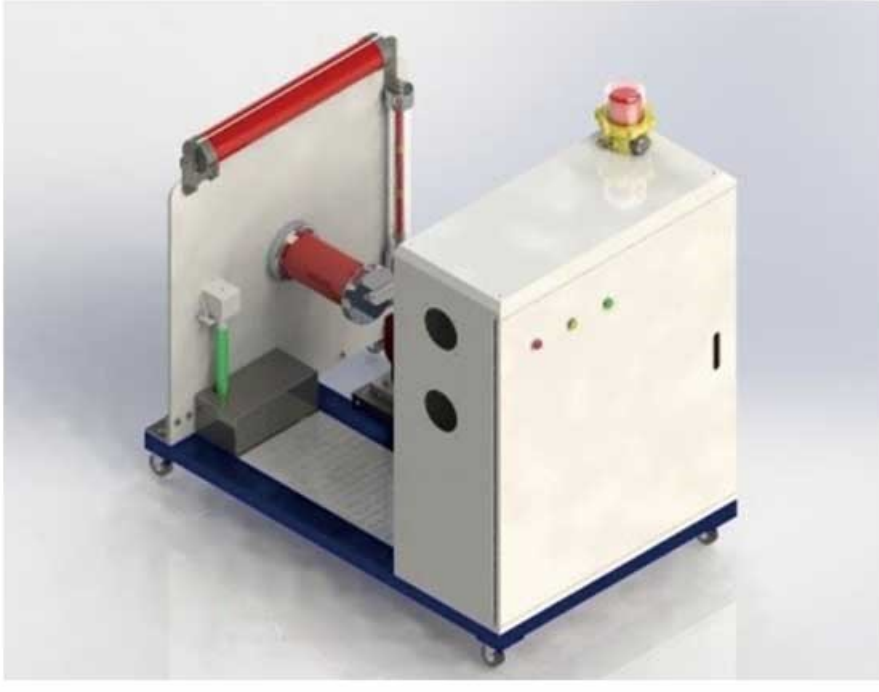
- ◆ 1200kV to 7200kV with energy from 30kJ to 720kJ;
- ◆ 200kV each stage;
- ◆ Stable structure, widely used worldwide;
- ◆ Built-in stairs, easy for operation and maintenance;
- ◆ High efficiency >90% (LI), >70%(SI), very low inductance;
- ◆ Suitable for routine test/ type test upon high voltage class equipment (220kV-1000kV class);

Feature of CDYM Model:



- ◆ 300kV to 3000kV with energy from 5kJ to 720kJ;
- ◆ 200kV each stage;
- ◆ Dry type impulse capacitors;
- ◆ Advance structure, air pressure gap used, suitable for high pollution condition;
- ◆ Remote changing stage of charging and discharging;
- ◆ Synchronization range >40%;
- ◆ Highly automatic, no installation requires at site;
- ◆ High efficiency >90% (LI), >90%(SI), very low inductance;
- ◆ Suitable for onsite test upon high voltage class equipment (35kV-1000kV class);

DC Charging Device (100kV/200kV):



100 kV or 200 kV HV DC Charging Power Supply of suitable current rating comprising of AC Test Transformer (50 kV or 100 kV), Voltage Doubling Circuit, Silicon Rectifiers for AC-DC Conversion, Thyristorized Voltage Regulator, Remote Controlled Internal Polarity Changing Circuit, Resistive Voltage Divider of 100 kV or 200 kV, Current Limiting Resistors, HV DC Isolation Transformer and Automatic Earthing Switch that are used for discharging the impulse stage capacitors. The HV DC Charging power supply is remotely controlled by computerized control unit and is built through a customized design of Samgor where no moving component is exposed to the atmosphere thus significantly enhancing the life and minimizing breakdowns.

Weak Damped Voltage Divider:



Samgor provides two type of impulse voltage divider. DFE Series have external damped resistance and DF Series have internal damped resistors. Both these impulse voltage dividers can be used to measure full lightning impulse voltages, tail chopped impulse voltages, switching impulses and AC voltages. They meet all the requirements of IEC 60060-2, specifically those with respect to measuring accuracy and step response. These impulse voltage dividers are also used as basic load for Impulse Voltage Generators. These dividers are composed of a non-inductive high rate of rise pulse duty modular capacitive structure. The top is equipped with corona shield. An impulse voltage divider reduces such impulse voltages to a safe level so that the Impulse Analyzer can capture, measure and analyze the impulse wave.

Multiple Chopping Gap:



Multiple chopping gap is used to chop lightning impulses (on the front and on the tail) up to the highest voltages. The multiple chopping gap serves simultaneously as a load capacitor for the impulse generator and allows excellent reproducibility of the chopping time and does not distort the wave shape until the chopping instant. The sphere distance is automatically adjusted by control system. In the automatic mode, their distance is set automatically as a function of the charging voltage. The gap distance is displayed on the controller screen. The chopping is initiated by firing of Impulse Generator. The Chopping Gap is a triggering device triggered through time-controlled trigger to obtain chopped lightning impulse of desired duration.

Digital Impulse Control & Measuring System:



Digital impulse control system communicates to the operator through a Windows computer or Laptop installed with user friendly software. The system can be operated in fully automatic, semi-automatic or manual mode. In automatic mode the operator feeds the desired charging voltage and the charging time. All other parameters like sphere gap setting, chopping gap setting, triggering of impulse generator and chopping gap are being taken care by the controller automatically. In manual mode, all these parameters may be selectively chosen to operate in auto or manual mode.

Digital impulse measuring system come with user friendly software and powerful curve analyzing tools along with report generating templates offers a complete solution to modern testing needs. Complete impulse capturing enables to determine the detailed information about the test object faster and accurately. Measurement evaluation and analysis of impulse voltages and currents can be performed according to IEC 61083, IEC 60060, IEC60076, IEC 60099, and IEC 60230, the relevant standards for High Voltage Impulse Testing.

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