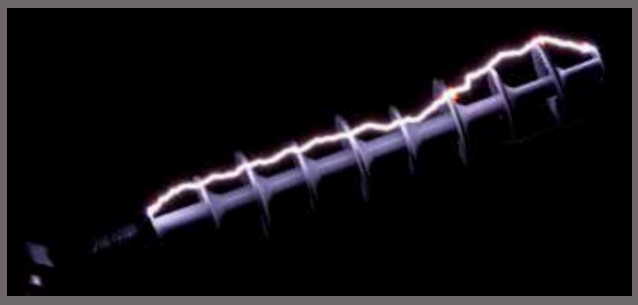
Science-based high-voltage testing, measurement and research

HIGH VOLTAGE LABORATORY

The High-Voltage Laboratory's activity is intended for research, development and education as well as testing for the needs of regular operation of important electrical power devices.



Slovenia's leading testing laboratory with international accreditation.

Tests to meet the needs of the regular operation of electricity installations.

State-of-the-art analytical processing of measurement and test results.

As the leading testing laboratory in Slovenia, we have the international accreditation in compliance with the ISO-EN 17025 certification for high-voltage testing.

ANALYTICAL PROCESSING WITH EXPERT INTERPRETATION OF RESULTS

The state-of-the-art testing equipment and elaborate laboratory measurement procedures are operated by highly qualified and specialised staff, supported by scientific research departments, to ensure state-of-the-art analytical processing and correct interpretation of measurement and test results.

LABORATORY EQUIPMENT WITH OUTSTANDING TESTING CAPABILITIES

The High-Voltage Laboratory now has many sources of high direct, AC and impulse voltage sources, impulse current sources and modern high-voltage measurement and diagnostic equipment. The capacity of resources enables the implementation of standard dielectric tests of all high-voltage levels.

- Testing with a high AC voltage from 0 kV to 700 kV at the frequency of 50 Hz.
- Testing with a standard atmospheric surge voltage 1.2/50 µs up to 2400 kV.
- Testing with standard 250/2500 µs switching impulse voltage to 1500 kV.
- Testing with 8/20 µs impulse current to 40 kA at 30 kV voltage.
- Testing with high direct voltage up to 600 kV.
- Testing with high AC currents to 12 kA.

LABORATORY MEASUREMENT METHODS

Our high-voltage laboratory and its facilities allow us to offer a range of standard and non-standard measurement and test methods:

- Measurement of AC voltages up to 500 kV (IEC-60060).
- Measurement of DC voltages up to 1000 kV.
- Measurement of impulse voltages 1.2/50 Ms.
- Measurement of switching impulse voltages 250/2500 Ms.
- Measurement of impulse currents up to 40 kA.
- Measurement of electrical currents up to 10 kA.
- Measurement of high- and low-ohmic resistances.
- Dynamic measurement of ohm resistances.
- Measurement of surface resistance of materials (IEC-62631).
- Measurement of electrostatic discharge of materials (IEC-62631).
- Measurement of volume resistance of materials (IEC-62631).
- Measurement of dielectric withstand voltage (IEC-60243).
- Measurement of dielectric loss factor (tgδ).
- Determination of dielectric constants of materials.
- Capacitance measurement.
- Inductance measurement.
- Impedance measurement.
- Recovery voltage measurement.
- Radio interference voltage measurement (IEC-61284).
- Corona measurement (IEC-61284).
- Partial discharge measurement (IEC-60270).
- UHF partial discharge measurement.
- Partial discharge measurement according to the acoustic method.
- Contact measurement of temperature.
- IR measurement of temperatures and thermography.

In line with our capabilities and the use of various measurement and test methods, the laboratory provides state-of-the-art scientific and technical expertise in the field of high-voltage electrical engineering.

DIAGNOSTIC TREATMENT OF ELECTRICAL FACILITIES AND DEVICES

From the applicative aspect and for the purposes of preventive maintenance, life expectancy assessment and operational reliability, the laboratory provides high-quality diagnostic treatment of electrical devices in various fields.

- Overhead power lines:
  - Electrical testing and dimensioning of insulation chains.
  - Electrical testing of overhead power line conductors.
  - Radio interference voltage measurement.
  - Corona measurement on overhead power lines.
  - Electrical testing of HV cables.
  - Operation and protection control.

- Substations and distribution:
  - Diagnostic measurements of power transformers.
  - Diagnostic measurements of instrument transformers.
  - Diagnostic measurements of circuit breakers and disconnectors.
  - Diagnostic measurements and tests (GIS).
  - Diagnostic measurements and tests of MV switchgears.
  - Diagnostic measurements of surge arresters.
  - Operation and protection control.
  - Thermographic tests of devices.

- Power plants:
  - Diagnostic measurements of generators and electric motors.
  - Operation and protection control.

- Industry:
  - Diagnostic measurements and tests in the industry.
  - Development measurements and tests of new products.
  - Electrical measurements and tests on materials.
  - Type testing.

- Work and safety equipment:
  - Testing of HV indicators.
  - Testing of HV earthing sticks and assemblies.
  - Testing of insulation blankets.
  - Testing of electrical gloves.

- Science and research:
  - Fundamental research for our own needs.
  - Applied research in the field of own studies and in collaboration with similar science and research institutions.
  - Technical and research support for university study programmes.

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