

The System's parts

Measuring Desk:

Especially for scientific applications. State of the art ergonomic workplace with big touch screen monitor and keyboard/mouse operation.

Power Source:

Electronic power source (frequency converter) with variable frequency, fully controlled by EPRO System

High Voltage Test Transformer:

Reliable, PD free, oil insulated test transformer, various models from 30kV to 500kV can be used together with the test system. For detailed information please refer to our brochure test bay equipment.

Standard Voltage Transformer:

The most accurate and reliable way of high voltage measuring. Various models can be used together with the test system. For detailed information please refer to our brochure test bay equipment.

Battery Power System for electronics:

Capacitance and dissipation factor measurement are majorly influenced by the Earth connection of measurement devices. To avoid these influences, EPRO has built up a complete battery powered measurement environment. The EPRO Battery Power System is built on a modular way. EPRO has set this system on well-established Security Cell phone Li-ion batteries.

Measurement boxes:

The measurement boxes for this system are the EPRO CBox with customer specific load. The easy scalability of the measurement load helps the system to focus on the best accuracy in a given measurement range.

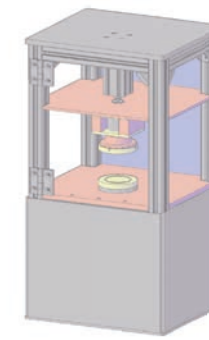


Routine and Scientific Testing

for VPI / RR Insulation Materials.



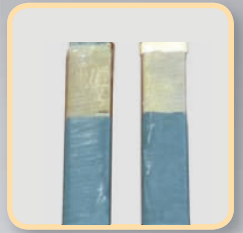
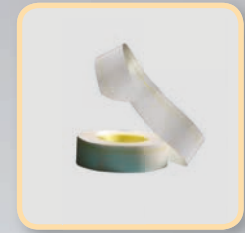
EPRO - InsulationTest // Breakdown



EPRO - InsulationTest // TanDelta



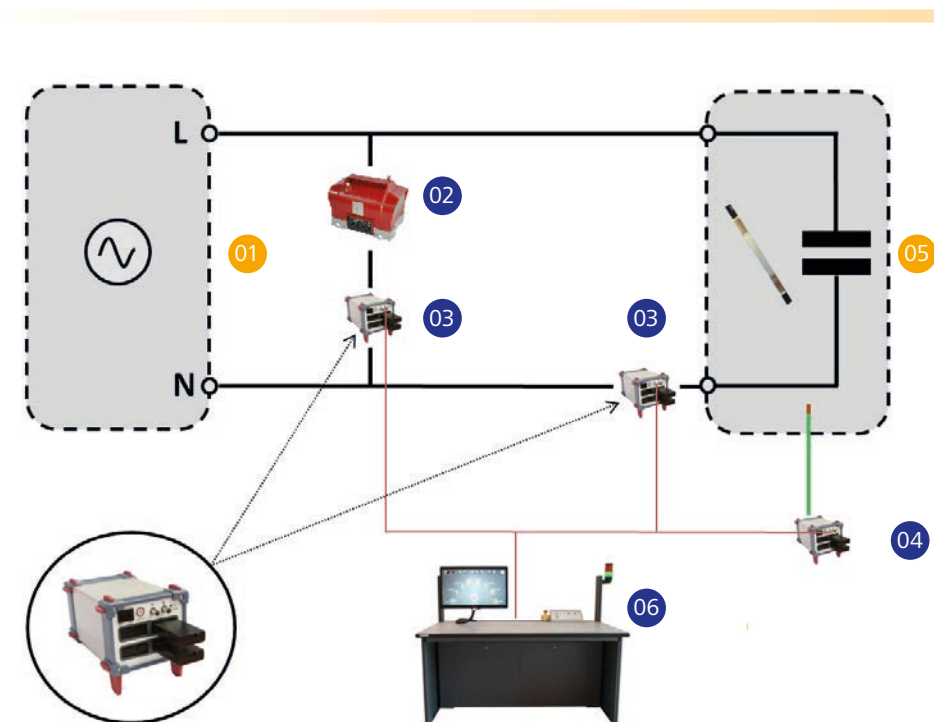
EPRO - InsulationTest // Premium



Testing Solutions for Insulation Materials.



The System's Architecture



01 (Electronic) Power Source

02 Standard Voltage Transformer

03 (battery powered) Measuring Boxes

04 (battery powered) Temperature Measuring Box

05 Object under Test

06 Measurement Desk

System architecture is highly modular. The measurement place can be upgraded very easily. The modular architecture fits perfectly for renovation of old test places where high test throughput, measurement data collection and automatic reporting are key factors.

Certificates and Approvals:

- ISO 9001 Quality Management System
- Accredited Calibration Authority according to EN ISO / IEC 17025
- GOST Pattern Approval Certificate of Measuring Instruments
- PTB On-Site Verification of the Accuracy of a Current and Voltage Measuring System of an Accredited Calibration Laboratory



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Electrotechnical Products for Power Distribution and Measurement



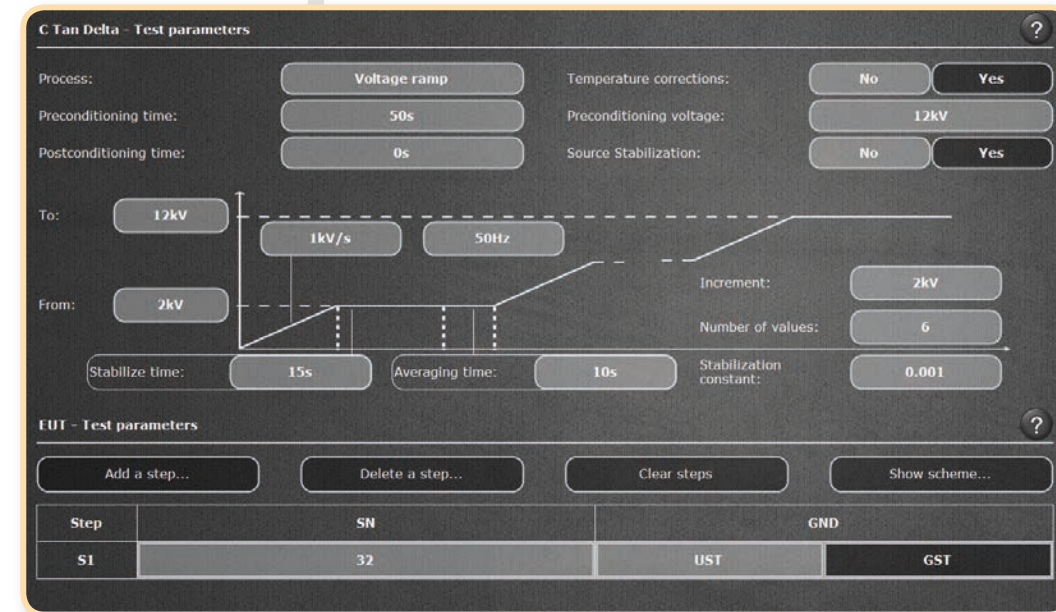
Premium

Routine and Scientific Testing for
VPI / RR Insulation Materials.

The World's first integrated testing solution for insulation material!

The system is bringing together the highest accuracy and reliability with easy and reproducible testing method. The system benefits from all the **EPRO Measurement Center** experience with focus on ease of use by the

unique graphical user interface, test object and Routine test Editors as well as Report management and also already existing equipment can be used for integration.



Premium

»Dissipation factor - Tan Delta testing«

- High accuracy
- Easy scalability of measurement ranges to improve accuracy
- Bridge measurement with standard capacitor or direct U/I measurement with voltage transformer
- Graphic driven testing solution
- Optimized for repetitive testing
- Management of multiple samples testing
- Pre-programmed Test Cycles like:
 - Tip-up testing
 - Tip-Down testing
 - Preconditioning of Materials
- User procedure can be composed with the routine test editor or can be added as Standard Test
- Calibration by PTB or other national metrology institute

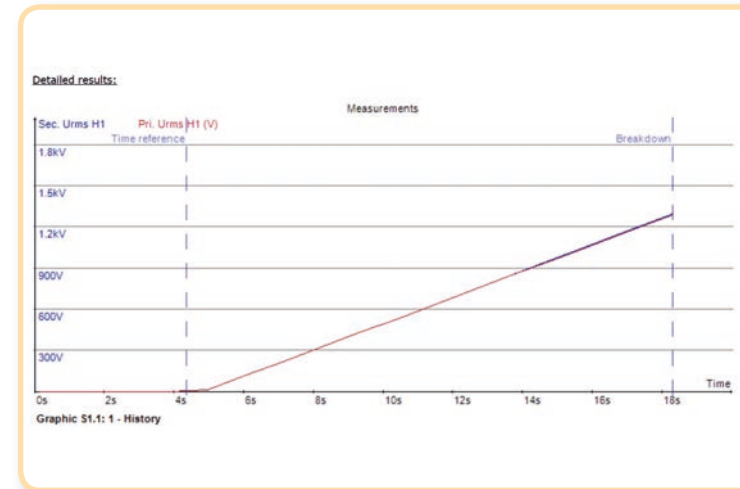
The test system performs measurements in accordance to the following standards:

- IEC 60894 and IEEE Std 286-2000 for C and Dissipation Factor Test
- IEC 60243-1 and ASTM D149 for breakdown voltage
- Other standards can be implemented on demand

Other Test can be implemented with the EPRO Measurement Center

- DC resistance
- Monitoring of environmental conditions
- Others on customer demand

The essential advantage - The Test results!



The System detects the breakdown either from voltage or current measurement. The accurate synchronization between the breakdown detection and measurement data allow the best repeatability of the results according the standards.

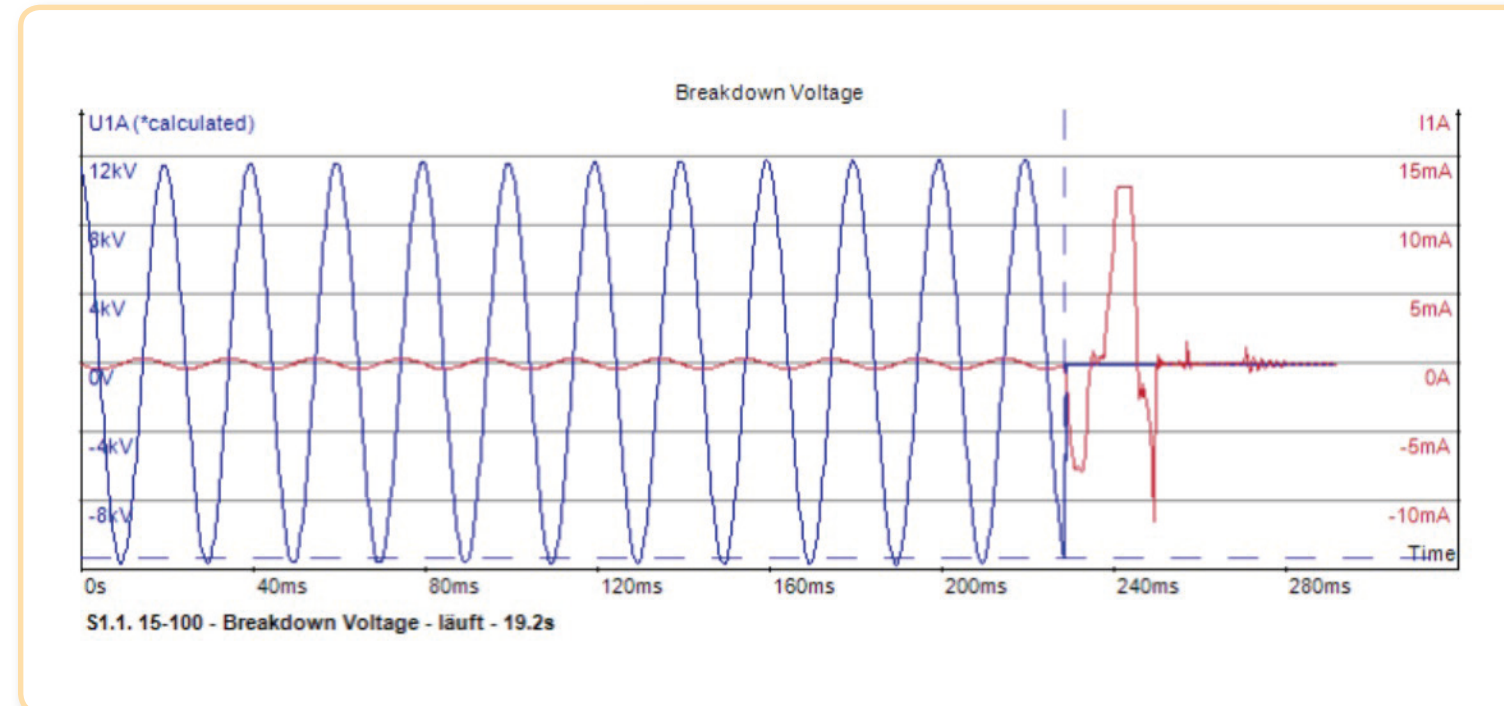
The waveshape of voltage at the breakdown is displayed and included into the test report. The unique breakdown algorithm helps to differ real material breakdown from air or surface discharges.

»Breakdown voltage detection«

- High speed control of electronic power source ensures constant high voltage ramp for reproducible test conditions
- Breakdown can be detected from either voltage or current measurement
- Very accurate detection algorithm to give reproducible results
- Graphic driven testing solution
- Optimized for repetitive testing
- Management of multiple samples testing



foto © by: Isovolta



Accuracy and Range

	Range	Accuracy
Voltage	All models of EPRO test transformers from 30kV to 500kV can be used	0.02%
Current	On demand for Cx Range	0.02%
Capacitance of device under Test Cx	On customers demand	0.04% of reading $\pm 0.1\text{pF}$
Dissipation Factor Tan Delta	From 0.01% to 10000 %	0.25% of reading $\pm 0.01\%$
Temperature measurement	Based on PT100	$T < 100^\circ\text{C}$ 0.5°C $T > 100^\circ\text{C}$ 1°C

These are preliminary values are subject to change without notice, please contact EPRO for latest information. Test place can be completely tailored to customer needs, following parameters should be defined:

- Test voltage range
- Measurement type
- Range of capacitance for objects under test

The measurement range will be optimized to reach the best accuracy. Limiting measurement range can improve the listed accuracies.



Example of measurement place installed at ISOVOLTA GROUP in Austria:

	Range	Accuracy
Test Voltage	0 – 100 kV	0.02%
Cn	100 pF	0.02%
Cn Current	2uA to 5 mA (without range switching)	0.02%
Cx current	20uA to 50mA (without range switching)	
Capacitance of device under Test Cx		0.04% of reading $\pm 0.1\text{pF}$
Dissipation Factor Tan Delta	From 0.01% to 10000 %	0.25% of reading $\pm 0.01\%$
Temperature measurement	Based on thermo-couple J	$T < 160^\circ\text{C}$ 1.2°C

All reported and recorded values can be set by customer in the report editor.

