



2914

Test cell for solid insulants

Datasheet



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Designed by



General Description

The test cell is used for dielectric tests on solid test samples together with the measuring bridge 2830/2831. It determines dissipation factor $\tan \delta$ and relative permittivity (dielectric constant) ϵ_r on solid insulates such as paper and plastic foils, as well as specific resistivity. It is equipped with a shielded measuring electrode which eliminates stray capacitances that influence test results (guard ring).

The design is the result of longstanding experience in the field of test cell building. It has been designed in accordance with ASTM (USA), IEC and ISO standards and conforms to recommendations of CIGRE.

The 2914 test cell consists of a shielded measuring plate electrode (with guard), and an insulated HV electrode mounted on the base plate, both electrodes can be heated.

A manual and external hydraulic system moves the upper electrode vertically. Once test object surface is reached, pressure between electrode and test object can also be increased. The embedded manometer indicates the specific pressure of the electrodes against the test object.

The electrodes are protected by a protective cover and can be vacuum and filled with protective gas through the available connections.

The test cell is equipped with a safety switch in the cover, ready to be connected to a Tettex power supply.

The base plate includes sockets for the measuring bridge, power supply as well as a temperature indication output.

Features	Advantages
<ul style="list-style-type: none"> Shielded measurement electrodes 	<ul style="list-style-type: none"> High precision measurements of samples with low $\tan \delta$
<ul style="list-style-type: none"> Built in accordance with the most common IEC and ANSI standards 	<ul style="list-style-type: none"> Test procedures and results fulfill the standards requirements
<ul style="list-style-type: none"> Vacuum probe supplied with 2 different electrodes 	<ul style="list-style-type: none"> Both dried and impregnated test samples can be tested inside the cell. Impregnation can be done inside the cell.
<ul style="list-style-type: none"> Fine adjustment of electrodes distance and pressure (with pressure indicator) 	<ul style="list-style-type: none"> Reliable and comparable measurement results
<ul style="list-style-type: none"> High power (1.3 kW) heating system and up to 200 °C. 	<ul style="list-style-type: none"> Short heating-up times, temperature is controlled from the measuring bridge 2830/2831 (if available), automated measuring sequences can be easily defined.
<ul style="list-style-type: none"> Cover with interlock (safety switch). 	<ul style="list-style-type: none"> Allows safe operation by disconnecting the power supply if the cover is removed.
<ul style="list-style-type: none"> Adjustable electrode distance with pressure indicator 	<ul style="list-style-type: none"> Wide variety of materials, or several layers of the same material can be tested.

Applications

Capacitance, $\tan \delta$ (dissipation factor) and relative permittivity measurements on solid insulating materials.

- Solid materials such as Organic/synthetic paper, silicone, rubber, polymeric plastic, etc.
- Oil impregnated paper- drying and impregnation process
- Other solid materials
- Research & Development in industry and university

Scope of Supply

- Test cell for solid insulates type 2914.
- Connecting cables set (power cable, temperature control, high voltage connection and measuring cable).
- Accessories set.
- Operating Manual.

Note: Input voltage (230 V / 130V) and Measuring bridge to be specified at time of ordering.

Measuring Bridge

The measuring cell 2914 can work with different measuring bridges, but it is optimized to work together with the 2830/2831 precision oil and solid dielectric analyzer, which includes the necessary elements to control the cell, create measuring sequences, collect results and generate reports.



Technical Data

Measurement	
Frequency	50 and 60 Hz (together with 2831), up to 100 kHz typically

Hardware	
Electrode surface	20 cm ²
Electrode Diameter	49.5 mm
Electrode material	stainless steel, hardened, lapped
Heating capacity	2 heating plates of 630 W each, 1260 W together
Electrode temperature	Ambient to +200° C
Heating-up time	approx. 15 min (for ΔT = 100 K)
Temperature control	with temperature controller built in 2831
Electrode pressure	0...10 N / cm ² , adjustable
Max. test voltage	2000 V RMS, 50/60 Hz
Test cell evacuation up to	0.15 mbar
Dimensions d x h x w	380 x 430 x 450 mm (15 x 16.9 x 17.7 in)
Weight	19.4 kg (42.8 lbs)

Mains Power Supply	
Voltage	From 2830/2831
Power	1260 VA

Environmental	
Operating temperature	10°C .. +30°C
Storage temperature	-20°C .. +70°C
Humidity	5 .. 90% r.h. , non-condensing

Mechanical	
Protection Class	IP 50
Dimensions (W x D x H)	380 x 430 x 450 mm
Weight	approx. 19.4 kg

Global Presence

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HIGH VOLTAGE



INSTRUMENTS



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