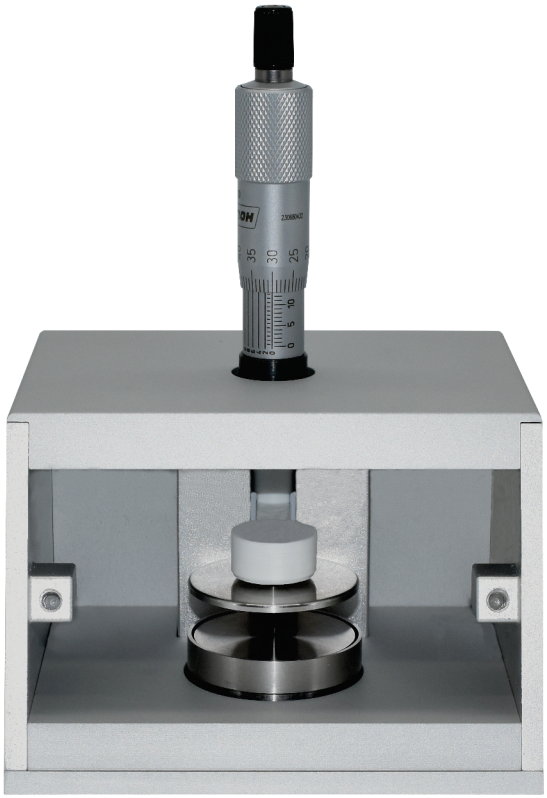

ARDA

Ambient Rigid Dielectric Apparatus

Key features:

ASTM D150 measurement principles
Ultra-low-frequency to 100 MHz measurement capability
Fully enclosed Faraday cage for electromagnetic shielding
Precision micrometer adjustment for accurate electrode positioning
Integrated ratchet mechanism for repeatable electrode contact and measurement force
Guarded two-electrode configuration
40 mm upper electrode
38 mm current-measuring electrode
0.5 mm guard gap
Ultra flat Stainless-steel electrodes with optional gold-plated surfaces
For rigid, flat samples up to 15 mm thickness
Supports liquid sample cells and disposable electrodes
Direct connection to Eynocs Lambda and Zeus
Up to 4 BNC connections for external analyzers
Extremely compact: only 125 × 120 × 80 mm excluding Micrometer

Brief description

ARDA (Ambient Rigid Dielectric Apparatus) is a compact, fully enclosed dielectric measurement cell designed for the characterization of rigid, flat electrical insulating materials under ambient-temperature conditions.

ARDA is designed for dielectric constant (relative permittivity), capacitance, dissipation factor and related dielectric properties measurements in accordance with the measurement principles described in ASTM D150. With an exceptionally compact size of only 125 × 120 × 80 mm, ARDA combines a guarded two-electrode measurement system with a fully enclosed Faraday cage, making it particularly suitable for measurements where very low signal levels and environmental electromagnetic interference are concerns.

Fully Enclosed Faraday Cage

A major feature of the ARDA is its fully enclosed Faraday cage surrounding the measurement assembly. At ultra-low frequencies, dielectric measurements can involve extremely small currents and high-impedance measurement conditions. Environmental electromagnetic fields, mains-frequency interference, radio-frequency signals and other electrical noise sources can therefore affect measurement stability and accuracy.

The enclosed shielding of the ARDA provides a controlled electromagnetic environment around the sample and electrodes, helping to minimize the influence of external electrical interference. This makes the ARDA particularly suitable for ultra-low-frequency dielectric measurements, while the same shielding concept also benefits sensitive measurements across the broader operating frequency range.

Guarded Two-Electrode System

ARDA uses a precision two-electrode configuration consisting of:

- 40 mm upper voltage/output electrode.
- 38 mm lower current-measuring electrode.
- Spring-loaded guard ring.
- 0.5 mm separation between the measuring electrode and guard.

Sample Capacity

ARDA is designed for rigid, flat samples up to 15 mm in thickness.

The available sample space can also be used with alternative sample configurations, including:

- Rigid solid dielectric samples
- Liquid sample cells
- Disposable electrode systems

The ability to use liquid sample cells within the available sample space extends the application range of the apparatus beyond conventional rigid solid samples.

Disposable electrode configurations can be used where rapid sample exchange or minimization of sample-to-sample contamination is important.

Upgrade Options:

- Gold-plated electrodes and Guard: ARDA-G.

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