

Automatic Water Vapour Transmission Rate Tester

GINTRONIC EasyPerm 650



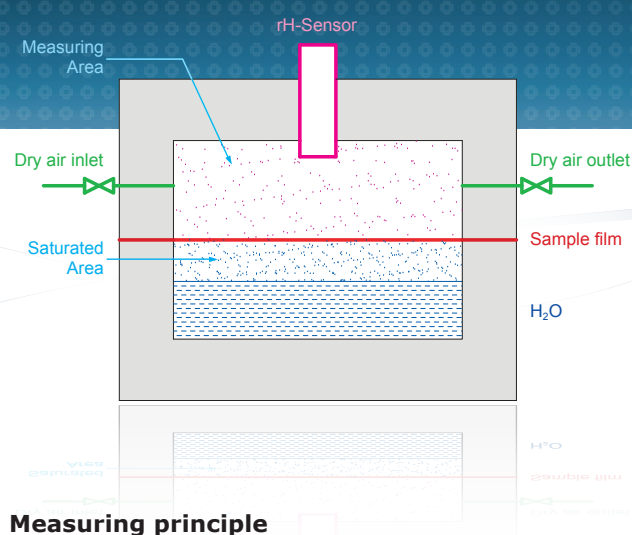
The GINTRONIC EasyPerm is an easy to use and cost efficient Automatic Water Vapour Transmission Rate Tester for quality and process control in the production of films, foils and other sheet materials

EasyPerm conforms to many important standards:

ISO 15106-1
ASTM E398-03
JIS K 7129
NF H00-044
and others

Easy to use
No carrier gas required
Advanced software

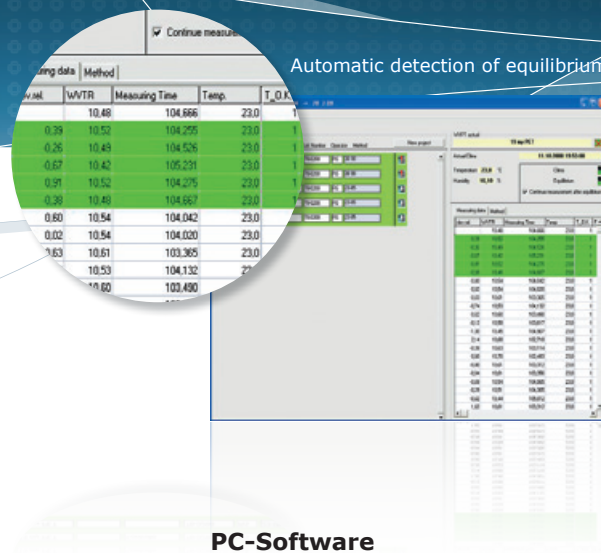
All user influences on test result eliminated



Measuring principle

The sample is glued in a self-adhesive sample holder. The lower chamber is filled with water which creates a saturated atmosphere in the lower chamber. After the sample holder is inserted into the instrument and clamped between the upper and lower chamber, the measuring process can begin. The upper chamber is dried to a pre-defined value of relative humidity (e.g. 9% r.H.). When the pre-defined humidity level is reached, the valves in the upper chamber will automatically close. At this time the water vapour from the lower chamber begins to permeate through the sample. This permeation will cause an increase

of humidity in the upper chamber. This increase of humidity is detected by the humidity sensor located in the upper chamber. When the pre-defined upper limit (e.g. 11% r.H.) is reached, the instrument will automatically determine the time of the increase in humidity from the lower limit to the upper limit and automatically transfer the data to the PC-Software. The PC-Software compares this time with the time of a known standard and calculates the result directly into $g/(d \times m^2)$. The measuring cycles will continue until the pre-defined equilibrium determined by the software and test method is reached.

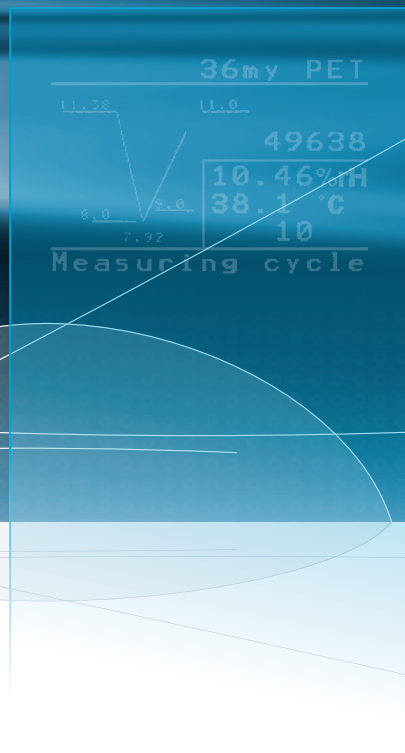


PC-Software

The EasyPerm 650's software package is user friendly. All test methods, measurements, and calibration data is stored in the data base and can be displayed at any time. **It is not necessary to re-calibrate the instrument if you change test methods as the calibration data is stored together with the relevant test method.** The results can be easily transferred to Excel®.

For high and low permeability samples
Minimum of maintenance

0.850



Ergonomic handwheel
of clamping mechanism



Built-in drying cartridge
– no carrier gas required



Technical details

The simple yet elegant clamping mechanism has over tighten protection. This system protects the instrument and sample from too much closing force on the sample and test chamber. As permeability is strongly depending on temperature, the GINTRONIC EasyPerm 650 has a built-in **precision heating system** that guarantees high precision and reproducibility of the test results. For precise measurements below 30 °C an external cooling system with high precision thermostat is available as an option.

The high precision digital temperature and humidity sensor is located directly inside the measuring chamber. This ensures fast and precise measurement of the test chamber parameters. The instrument has a built-in drying cartridge and drying pump, thus eliminating the need for a connection to a carrier gas line.

The integrated microprocessor controlled closed loop electronic circuit regulates and controls the flow of dry air depending on the permeability of the sample. The test results are transferred automatically to the PC. The PC-Software calculates the results, indicates equilibrium and stores the data in a data base. This high level of automation eliminates all **operator influence** on the test results and reduces **maintenance to a minimum**.

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Technical specifications

Measuring device for determination of water vapour transmission rates of polymeric films and other sheet materials (thickness of test material 0 - 10 mm)

- Conforms to ASTM E398-03, ISO 15106-1, JIS K 7129, NF H00-044
- Sample surface: 50 cm²; reduction card for high permeability
- Measuring range: 0.03 – 10.000 g/(d x m²)
- Calibration with enclosed test standards (Goretex®, PET), up to 3 calibration points possible
- Automatic linearity compensation at 5 point calibration, trend monitor
- Humidity control of upper measuring chamber: 5 - 85% r. H. (humidity difference Δ 15 - 95 % r. H.)
- Automatic temperature control: 30 – 50 °C
- Automatic temperature control by using of an optional cooling thermostat: 5 - 70 °C
- Automatic microprocessor controlled integrated Touch-screen display, shows actual operating conditions
- In the measuring chamber integrated temperature and humidity control with direct digital signal
- Automatic control of the flow of dry air dependent on permeability of the sample
- System requirements of PC: Windows® XP-Professional or Windows® VISTA Business Edition; min. Excel®2000; free serial (RS 232 / COM) port
- Dimensions without PC: aprox. 360 x 400 x 310 mm, weight aprox. 25 kg, PC not contained in scope of supply
- Voltage: 230 V/50 Hz or 115/110 V 50/60 Hz
- Windows® based PC-Software:
 - storage of calibration data with Windows® based PC-Software
 - re-calibration unnecessary with method change
 - storage of measuring data with Windows® based PC-Software
 - method and sample definition with Windows® based PC-Software
 - possibility of export of the measuring data in Microsoft® Excel®
 - storage of the measuring data as backup in the network possible

Subject to modifications in the interest of technical progress.

Device conforms to valid CE-Norms.

