L&W Autoline Air Permeance module uses the latest technology to measure air permeance in accordance with the most common measuring methods.

**Why measure air permeance?**
The measurement of air permeance is a useful control test for machine production. Air permeance test of paper may be used as an indirect indicator of fluid permeance, as well as other variables such as: degree of refining, liquid absorbency and filtering efficiency for liquids or gases. Air permeance is influenced by the internal structure and the surface finish of the paper. Internal structure is controlled largely by the type and length of fibers and their orientation; as well as the type and amount of fillers and sizing.

**Measurement results**
L&W Autoline Air Permeance module uses the same measuring technology as the proven L&W Air Permeance Tester laboratory stand-alone testing equipment. This provides the same precision results.

The traceable calibration of the pressure transmitter and flow meter ensures a very high level of reproducibility. The easy check functions of the instrument ensure fast and reliable routine measurements with the highest possible precision.

Traditional methods of measuring air permeance can be slow and laborious, but with L&W Autoline Air Permeance measuring is fast and automatic. The pre-set measuring time is usually 5 seconds for all types of samples, thereby saving considerable time when measuring paper grades with low levels of air permeance. Automatic measurements also minimize errors and poor reproducibility, which can be caused by differences in instrument handling. With a measuring range covering 0.003–100 µm/Pa s it is suitable for most paper grades. L&W Autoline Air Permeance measures on a 50 cm² large measuring area, providing a more statistically accurate calculation of the mean value. This ensures accuracy and eliminates errors due to formation variances.

**BENEFITS**
- Measurement reliability and reproducibility
- Covers most produced grades
- Provides both traditional and pressure-drop compensated values
- Independent of errors from formation variances
- Fast test sequence
- High accuracy

**FEATURES**
- Based on the proven L&W Air Permeance Tester
- Barometric pressure compensation
- Bottom-side mechanism for precise parallelism
- Large measuring area
**Technical specifications**

**– L&W Autoline Air Permeance, code 616**

**Method**
Measurement of air permeance using 50 cm² test area and pressure compensation

**Measuring range**
0.003–100 μm/Pa s approx.
Corresponding to:
2–40000 Gurley s (100 cm²)
0.3–8800 Bendtsen ml/min
0.03–3600 Sheffield units

**Instrument**
Contact pressure: 1 MPa (145 psi)
Test pressure: 20 kPa (2.9 psi)
Test area: 50 cm²

**Results**
Measurement values:
- Air permeance in μm/Pas,
- Gurley seconds, Bendtsen ml/min,
- Sheffield units

**Installation requirements**
- Power: 10 W (max. 15 W)
- Air pressure: min. 400 kPa (max. 1 Mpa)
- Air consumption: 40 Nl/min (average 15 Nl/min)
- Dimensions: 0.2 × 0.6 × 0.7 m (8 × 24 × 28 in)
- Net weight: 18 kg (39 lb)

**Possible combination modules**
- L&W Autoline Bendtsen Roughness
- L&W Autoline Sheffield Roughness

**Related standards**
- APPITA 1301.440, APPITA 1301.420,
- DIN 53 120, ISO 5636/3, ISO 5636/4,
- ISO 5636/5, ISO 11 004, NF Q03-076,
- NF Q03-078, SCAN P26, SCAN P53,
- SCAN P60, SCAN P85, TAPPI T460,
- TAPPI T547

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**DEFINITION:**
Air permeance is the mean airflow through a paper sample of given area divided by the pressure difference across the test piece. It is expressed in the units, μm/Pa s.

A test piece is clamped to form a dividing wall between two circular washers. The washer’s inner diameter provides the known measurement area. One side of the test piece has a constant overpressure and the other side is in contact with atmospheric pressure. The airflow through the test piece relative to the pressure difference across the test piece is measured, and from that the air permeance is calculated.

The measurement value can be converted to air permeance according to the Bendtsen, Gurley or Sheffield method.

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**Measurement principle**

![Diagram of air permeance measurement](image)