



## GURLEY STANDARD & LOW PRESSURE DENSOMETERS



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### APPLICABLE STANDARDS

TAPPI T460 - ASTM D 726 - APPITA / AS 1301-420 - BS 5926 - CPPA D.14 - ISO 5636/5  
NF Q 03-078 - SCAN P-19 y P-53

### GENERAL INFORMATION

- Densometers are the accepted standard for measuring the porosity of materials such as papers, wovens, plastics and membranes.
- All Densometers measure the time required for a given volume and of air (25cc to 400cc) to flow through a standard area of material being tested under light uniform pressure.
- Certain models, such as the S-P-S Tester, are also used to measure surface smoothness and material softness.
- Manual and automatic units available.

### SPECIFICATIONS

The Densometer test measures the time required for a given volume of air (25cc to 300cc) to flow through a standard area of material tested, under light uniform pressure. The air pressure is supplied by an inner cylinder of specific diameter and standardized weight, floating freely within an outer cylinder partly filled with oil to act as an air-seal. The sample material is held between clamping plates having a circular orifice area of 1.0 (standard), 0.25 or 0.1 square inch (optional).

Densometer readings may be evaluated on both a direct or indirect basis dependent upon the material and test purpose. They are a direct test of materials which are intended to either resist or permit the passage of air. Indirectly, they are used to measure other physical properties which affect the flow of air through a porous sheet.

### APPLICATIONS INCLUDE:

- In manufacturing and printing, to control the selection of materials affording the appropriate degree of liquid (ink, varnish, sizing) absorption.
- To test filters, porous bags & materials where controlled porosity is essential.
- To test insulating materials for air resistance.
- To supplement other physical tests enabling regulation or strength of manufacturing process to give the desired formation, appearance or strength since there is a close correlation in a given material between air permeability and these other properties.

**NOTE:** If the Densometers are **equipped with the Digital Time Meter model 4320 (OPTIONAL)**, which allows to control with great accuracy the time in seconds of the passage of air through the sample and also to be able to connect the Densometer / Permeabilimeter to the **LYNX** System (Data Management of the Laboratory).



**Model 4110N:**

The most popular Densometer sold for measuring porosity and air permeability in materials of average values. With options such as smaller orifice plates, materials of lower permeability may be effectively tested. By using a 5 oz. cylinder, materials of a higher permeability can be tested (Model 4118).

The Model 4110 includes a 20 oz. cylinder and 1.0 square inch orifice lower clamp plate and upper adapter. The 20 oz. cylinder is graduated to 25cc for the first two spaces and 50cc for each space thereafter, for a total of 300cc. Typical of all new-style densometers, clamping pressure is supplied by turning a knob which raises and locks the lower lifting assembly and clamp plate. Both the automatic timer and instrument base are recommended with these densometers and are ordered separately.

**Model 4118N:**

The Model 4118 is a Model 4110 with a 5 oz. cylinder in place of the 20 oz. inner cylinder and 0.1 sq. in. clamp and adapter plates instead of the 1.0. It is used to test fabrics and other more permeable materials for porosity, permeability and air-resistance.

**Model 4140N:**

This model is identical in function to No. 4110 and includes the weighted arm assembly found on No. 4190. Uniform dead-weight clamping pressure for tests is supplied by the unweighted lever arm or by the addition of either 0.34 lb. (optional) or 2.0 lb. (standard) weights. These combinations produce clamping pressures of 3.2 psi, 9.6 psi and 40.5 psi respectively. With the addition of several test plates, a papers punches. 0.34 lb. weight and storage box, the No. 4140 becomes a no. 4190. Order the digital timer and base separately.

**Model 4190N S-P-S Tester****- To measure smoothness, porosity and softness (or compressibility)**

The No. 4190 was originally developed to test the printing quality of paper. In more recent years, its use has spread to other industries in testing or checking other material surfaces for smoothness, softness or porosity. In dealing with the printability of paper, it has been found that smoothness is the most important factor in printing quality and softness is usually secondary.

The Gurley No. 4190 S-P-S Tester measures a given air flow through the sample for porosity tests and leakage across its surface(s) for softness or smoothness tests. This is accomplished by changing a variety of adapter and clamping plates.

This model is identical to the No. 4110 and 4140 for porosity tests and their components. Additionally, it includes a 0.34 lb. weight, smoothness test clamping plate, softness test clamping plate, punch and accessory storage box. Both the automatic digital timer and instrument base are recommended and should be ordered separately.

**POWER SUPPLY:** 110V/60 Hz or 220/50 Hz single-phase (corresponds to 4320 digital module)

**TEST EQUIPMENT DIMENSIONS:** 200 x 215 x 430 mm (An. x Fondo x Al.)

**NET WEIGHT:** 10 Kg

**TRANSPORT PACKAGING DIMENSIONS:** 500 x 500 x 650 mm (An. x Fondo x Al.)

**GROSS WEIGHT APROX.:** 22 Kg

**CONTENTS OF THE STANDARD SUPPLY:**

\* The selected Densometer / Permeabilimeter model