



TEST REPORT

N. 11-0659-01 issued on 2011-09-27

Description Determination of air flow resistance

Model/Type Materials for acoustical applications

Identification LASER J

Manufacturer FIDIVI Tessitura Vergnano S.p.A.

Date of test 2011-09-22

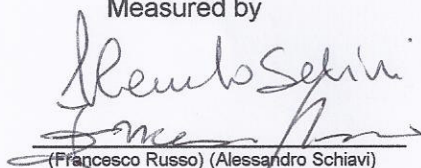
Applied procedure PT-AC-01-P-11
Laboratory measurement of dynamic stiffness

Laboratory reference AC-Edil-2011


Customer FIDIVI Tessitura Vergnano S.p.A.

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Measured by


(Francesco Russo) (Alessandro Schiavi)

Authorised signatory


(Vito Fericola)

This report states that the measurements have been carried out using devices traceable to the Italian National Standards (Ministerial Decree no. 591/1993) and to the measurement units realized or maintained by INRIM, according to the Italian law no. 273/1991. The results reported in this document apply exclusively to the items described and in the specified measurement conditions. The authenticity of this document is proved by the original signatures and the embossing stamp. This document may only be published in full, unless permission for the publication of an approved extract has been obtained in writing from the INRIM and to be mentioned on it.

1. TYPOLOGY OF MATERIAL

Customer's description of the materials:

Commercial reference: LASER J

Composition: 100 % Polyester Trevira CS

Weight: 525 g/m²

Thickness: 1, 5 mm

2. TEST METHOD

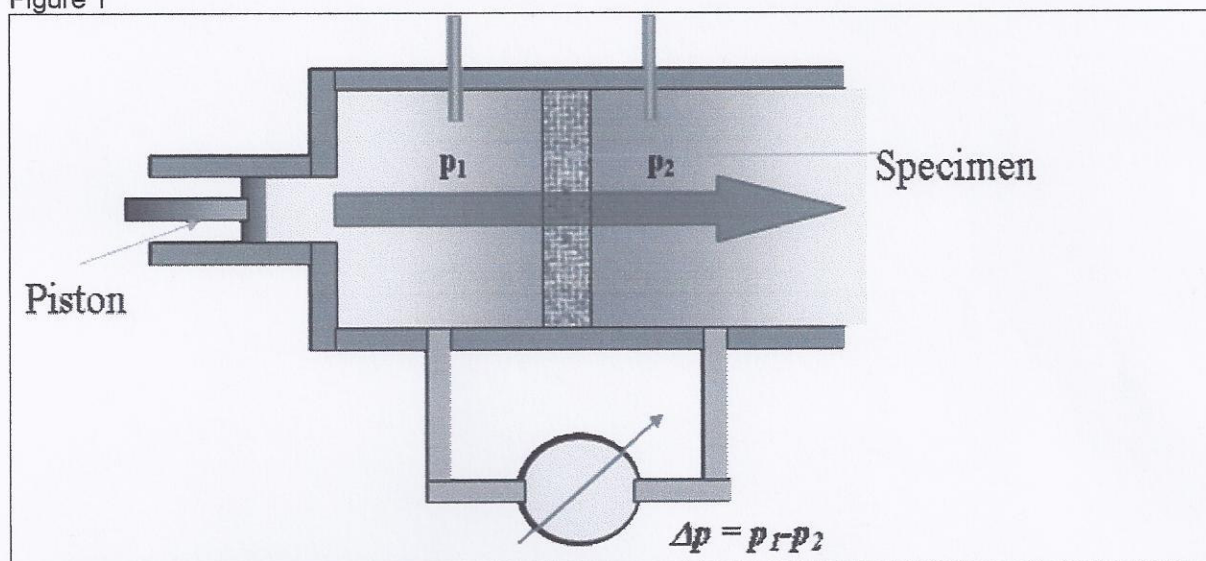
The test method for determining the airflow resistance of porous materials is performed accordingly with ISO 9053/1994 Standard.

The airflow resistance is achieved by generating a slow air flow through the sample and measuring with a microphone the r.m.s. pressure in the volume of the measurement cell delimited by the test specimen.

The alternating volumetric airflow is generated by a piston at a frequency of 2 Hz

Figure 1 shows a diagram of the measurement principle.

Figure 1



The measurement is performed on 3 cylindrical specimens with a diameter of 100 mm. The airflow resistance value declared is the average of the three measured values.

The airflow resistivity, in pascal second per square meter, is given by:

$$r = \Delta P \cdot A / q_v \cdot d$$

where:

ΔP is the air pressure difference across the sample with respect to the atmosphere, in Pa;

q_v is the air flow rate through the sample, in m³s⁻¹;

A is the section of the tested sample, in m²;

d is the specimen thickness in the direction of flow, in m.

Checked by:

Andrea Pavoni Belli
(Andrea Pavoni Belli)

Measurement devices used in test:

The measuring airflow resistance equipment realized at the National Institute of Metrological Research of Turin, characterized by:

- A cell measurement in aluminium, diameter 100 mm;
- A perforated plate for the support of material;
- A piston (Teflon®), diameter 50 mm, led by an eccentric connected to a stepper motor, which produces a flow of air, alternating at 2 Hz;
- A condenser microphone (1/2", Brüel and Kjær Type 4191) for the measurement of alternating pressure component in the closed volume of the cell;
- A microphone pre-amplifier (Brüel and Kjær Type 2669);

A measuring amplifier (G.R.A.S. type 12AK);

A spectrum analyser (ONO SOKKI type DS 2100).

3. MEASUREMENT RESULTS

In Table 1 the results of measurement are reported. Expanded uncertainty U is expressed as the standard uncertainty multiplied for the covering factor $k = 2$; for a normal distribution is a covering probability of about 95%.

Environmental condition during test


Air temperature: 23,7 °C

Relative humidity: 39,6 %

Table 1 - LASER J

| | Airflow resistivity (kPa.s/m ²) | thickness (mm) | Weight (g) | Weight per unit volume (kg/m ³) |
|-------------------|--|-------------------|---------------|--|
| Specimen 1 | 445 | 1,79 | 4,5 | 320 |
| Specimen 2 | 435 | 1,79 | 4,5 | 320 |
| Specimen 3 | 415 | 1,79 | 4,5 | 320 |

Checked by:


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