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M139164/02 MSG/STY

Fabric Type CLASS, FIDIVI Tessitura Vergnano – S.p.A.

Determination of airflow resistance according to EN 29053

Test Report No. M139164/02

Client:	FIDIVI – Tessitura Vergnano – S.p.A. Regione Masio 19/bis 10046 Poirino (TO) ITALY
Consultant:	M. Eng. Philipp Meistring Juri Schwezow
Date of report:	2017-12-05
Delivery date of test object:	2017-11-27
Date of test:	2017-11-30
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Accredited testing laboratory according to ISO/IEC 17025

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1 Task

On behalf of FIDIVI – Tessitura Vergnano – S.p.A., Regione Masio 19/bis, 10046 Poirino (TO), ITALY, the airflow resistance of the fabric type CLASS was to be determined according to EN 29053 [1].

2 Basics

This test report is based on the following document:

[1] EN 29053: Acoustics – Materials for acoustical applications – Determination of airflow resistance. 1993

3 Test objects

The tested fabric is described in Table 1. The indicated characteristic values were determined by the testing laboratory on the basis of the sample delivered by the manufacturer.

Table 1. Test object.

Test object (manufacturer's information)	**Area specific mass m'' [g/m²]**	**Thickness t [mm]**
Fabric type CLASS, Manufacturer FIDIVI – Tessitura Vergnano – S.p.A. Material: 100 % Polyester Trade Mark Trevira CS	393	1.4

4 Execution of measurements

The airflow resistance was determined according to EN 29053 [1].

The test method, the test facility and the test equipment used are described in Appendix B.

5 Measurement results

For the tested fabric type CLASS a specific airflow resistance of

$$R_s = 650 \text{ Pa} \cdot \text{s/m}$$

was determined.

The measurement results are shown in diagrams and tables in the test certificate in Appendix A of this report.

6 Remarks

The test results exclusively relate to the investigated subjects and conditions described.

M. Eng. Philipp Meistring
(Project Manager)

Juri Schwezow
(Responsible)

DAkkS Deutsche Akkreditierungsstelle D-PL-14119-07-00

Durch die DAkkS Deutsche Akkreditierungsstelle GmbH
nach DIN EN ISO/IEC 17025 akkreditiertes Prüflaboratorium.
Die Akkreditierung gilt für die in der Urkunde aufgeführten Prüfverfahren.

EN 29053
Determination of airflow resistance

Client: FIDIVI - Tessitura Vergnano - S.p.A.
Regione Masio 19 / bis
10046 Poirino (TO)

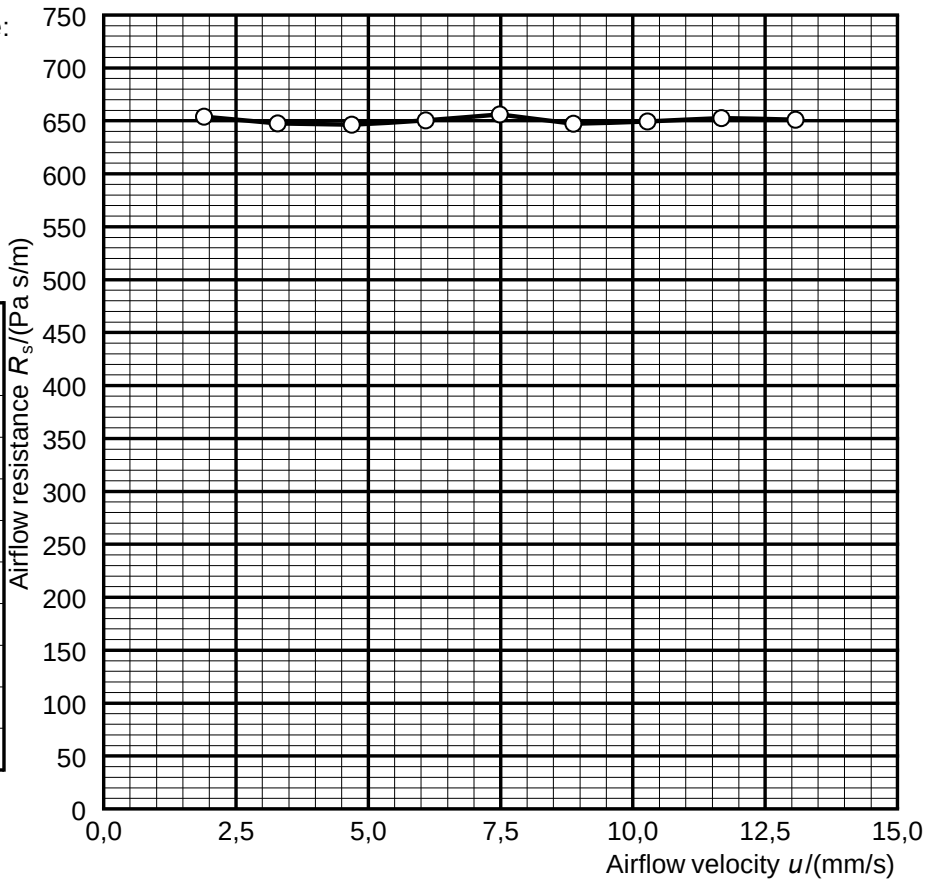
Project number: M139164
Sample number: 12713
Test object: Fabric: CLASS

material: 100% Polyester Trade
Mark Trevira CS

Diameter: 100 mm
Thickness: 1.4 mm
Area-specific mass: 393 g/m²

Barometric pressure:
B = 94,2 kPa
Temperature:
θ = 21,8 °C
Relative humidity:
r. h. = 14,2 %

u/ (mm/s)	R_s/ (Pa s/m)
1.89	654
3.29	647
4.69	646
6.08	650
7.48	656
8.88	647
10.27	649
11.68	652
13.07	651



Airflow resistance R_s = 650 Pa s/m

Laboratory: Planegg
Responsible: Schwezow
Date: 2017-11-30

Description of the test procedure for the determination of the airflow resistance

1 Measurand

The specific airflow resistance R_S of the test object was determined. For this purpose the air pressure difference in front of as well as behind the test object was measured at different volumetric airflow rates. The specific airflow resistance $R_{S,I}$ for each volumetric airflow rate q_i determined was calculated using the following equation:

$$R_{S,i} = \frac{\Delta p_i A}{q_i}$$

With

$R_{S,i}$ specific airflow resistance in Pa s/m;

Δp_i air pressure difference across the test object with respect to the atmosphere in Pa;

A cross-sectional area of the test objects perpendicular to the direction of flow in m^2;

q_i volumetric airflow rate passing through the test object in m^3/s;

u_i linear airflow velocity in m/s.

In addition the linear airflow velocity u_i was determined:

$$u_i = \frac{q_i}{A}$$

The indicated measurement result is the specific airflow resistance R_S, which is calculated for an airflow velocity of u = 0.0005 m/s by extrapolation with help of the linear regression.

2 Test procedure

The direct airflow method (method A according to EN 29053) was applied. A steady unidirectional airflow with different air flow rates is pressed through the test object in the specimen holder. The resulting pressure drop between the two free faces of the test object is measured.

The specimen holder had a diameter of D = 100 mm.

3 List of test equipment

The test equipment used is listed in Table B.1.

Table B.1. Test equipment.

Name	**Manufacturer**	**Type**	**Serial-No.**	**Calibration valid until**
Measurement system airflow resistance	Müller-BBM	M89319-00	315003	2018-03
Software for measurement and evaluation	Müller-BBM	m|ars	1.2.5253.15707	
Digital measuring slide	Mitutoyo	CD-15PPR	07019377	2019-03
Electronic balance	Kern	KB1200-2N	W1402353	2019-03