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M139164/01 MSG/STY

## **Fabric Type FOX, FIDIVI Tessitura Vergnano – S.p.A.**

**Determination of airflow resistance  
according to EN 29053**

**Test Report No. M139164/01**

Client:	FIDIVI – Tessitura Vergnano – S.p.A. Regione Masio 19/bis 10046 Poirino (TO) ITALY
Consultant:	M. Eng. Philipp Meistring Juri Schwezow
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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 FOX 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/m <sup>2</sup> ]	Thickness $t$ [mm]
Fabric type FOX, Manufacturer FIDIVI – Tessitura Vergnano – S.p.A.  Material: 100 % Polyester Trade Mark Trevira CS	355	1.1

## 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 FOX a specific airflow resistance of

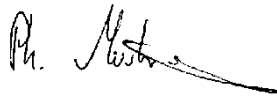
$$R_s = 603 \text{ Pa} \cdot \text{s/m}$$

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)

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nach DIN EN ISO/IEC 17025 akkreditiertes Prüflaboratorium.  
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## EN 29053

## Determination of airflow resistance

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

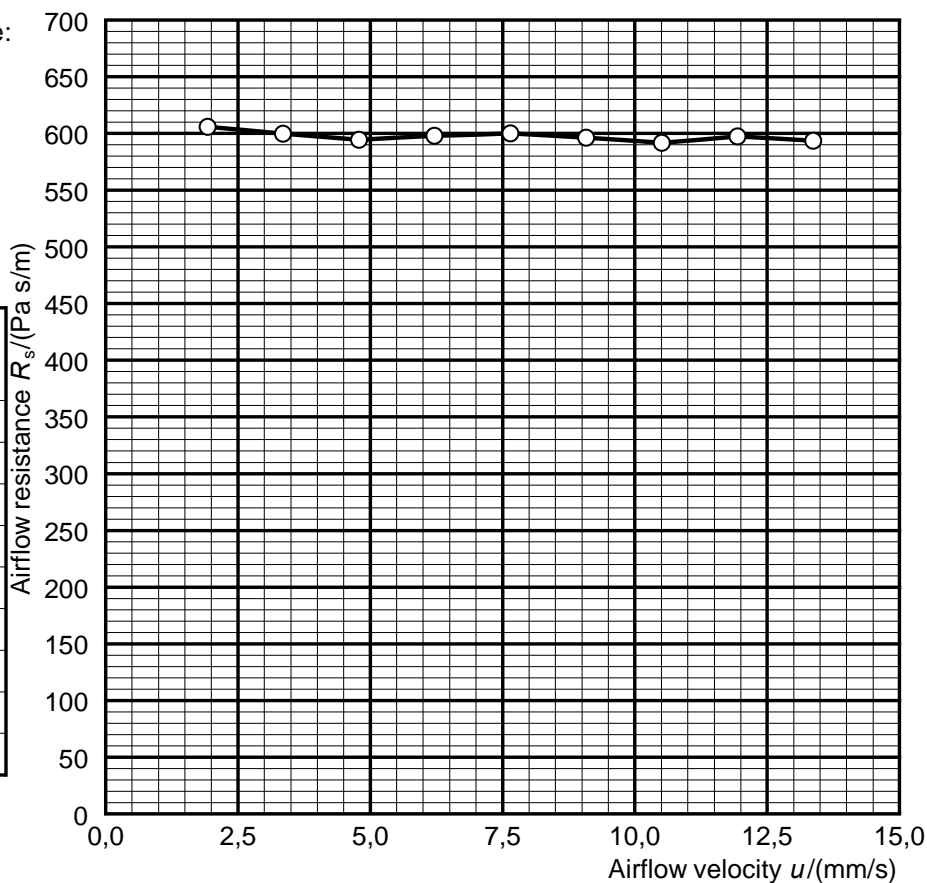
**Project number:** M139164  
**Sample number:** 12712  
**Test object:** Fabric: FOX

material: 100% Polyester Trade  
Mark Trevira CS

Diameter: 100 mm  
Thickness: 1.1 mm  
Area-specific mass: 355 g/m<sup>2</sup>

Barometric pressure:  
 $B = 94,1 \text{ kPa}$   
Temperature:  
 $\theta = 21,6 \text{ °C}$   
Relative humidity:  
 $r. h. = 18,2 \%$

$u/$ (mm/s)	$R_s/$ (Pa s/m)
1.93	606
3.35	600
4.79	594
6.21	598
7.65	600
9.08	596
10.51	592
11.94	597
13.37	593



Airflow resistance  $R_s = 603 \text{ Pa s/m}$

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;

$\Delta p_i$  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<sup>2</sup>;

$q_i$  volumetric airflow rate passing through the test object in m<sup>3</sup>/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