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M100827/220 Version 1 MSG/STEG

Curtain fabric Relate by Kvadrat A/S

Determination of airflow resistance according to DIN EN ISO 9053-1

Test Report No. M100827/220

Client:	Kvadrat A/S Lundbergsvej 10 8400 Ebeltoft DENMARK
Consultant:	M. Eng. Philipp Meistring M.Sc. Paul Siegmüller
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Appendix A: Measurement results and evaluation

Appendix B: Description of the test procedure and list of test equipment

1 Task

On behalf of Kvadrat A/S, 8400 Ebeltoft, Denmark, the airflow resistance of the fabric type Relate was to be determined according to DIN EN ISO 9053-1 [1].

2 Basis

This test report is based on the following document:

[1] DIN EN ISO 9053-1: Acoustics –Determination of airflow resistance – Part 1: Static airflow method (ISO 9053-1:2018); German version EN ISO 9053-1:2018. March 2019

3 Test object

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 (information provided by the client)	**Area specific mass m'' [g/m²]**	**Thickness t [mm]**
Fabric type Relate, color 401, manufacturer Kvadrat A/S, material 100 % Trevira CS	312	0.72

4 Execution of measurements

The airflow resistance was determined according to DIN EN ISO 9053-1 [1].

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

5 Measurement results

For the tested fabric the following specific airflow resistance was determined:

- fabric type Relate R_s = 2241 Pa · s/m

The measurement results are shown in the diagram and table 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)

Deutsche Akkreditierungsstelle D-PL-14119-07-00

Testing laboratory accredited by DAkkS according to DIN EN ISO/IEC 17025:2018.
The accreditation is valid only for the scope listed in the annex of the accreditation certificate.

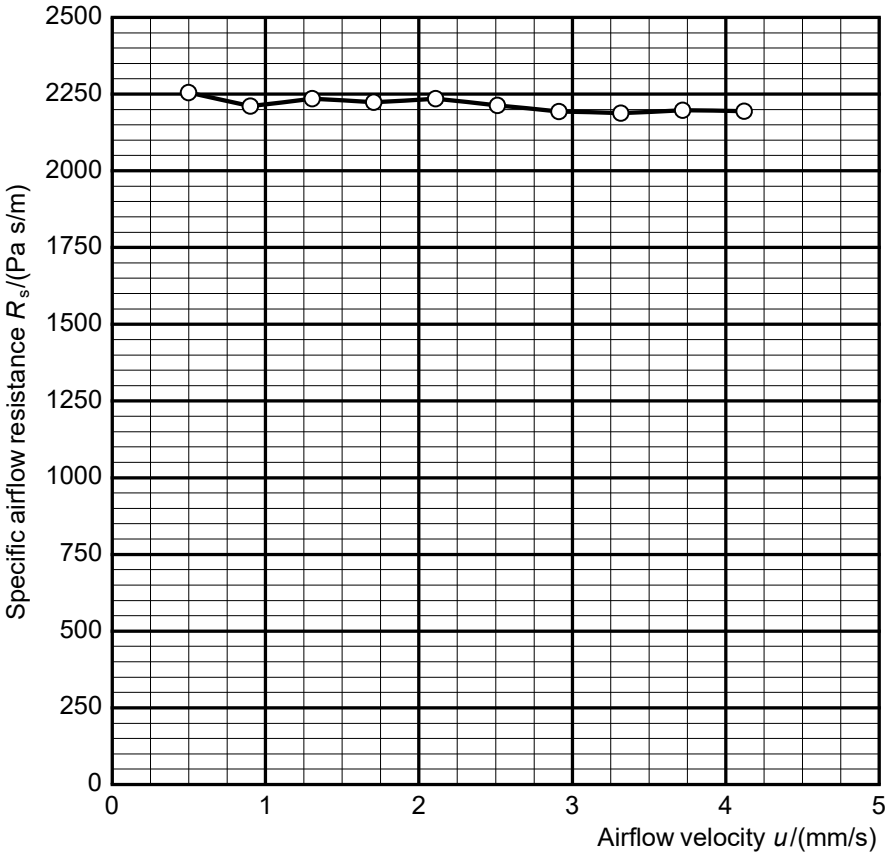
ISO 9053-1
Determination of airflow resistance

Client: Kvadrat A/S
Lundbergsvej 10
8400 Ebeltoft
Project number: M100827
Sample number: 13902
Test object: - fabric: Relate color 401
- material: 100% Trevira CS

Diameter:	100	mm
Thickness:	0.72	mm
Area-specific mass:	312	g/m^2

Barometric pressure:
B = 95,3 kPa
Temperature:
θ = 21,7 °C
Relative humidity:
r. h. = 43,2 %

u/ (mm/s)	R_s/ (Pa s/m)
0.50	2255
0.90	2210
1.30	2235
1.70	2224
2.11	2235
2.51	2213
2.91	2193
3.32	2188
3.72	2197
4.12	2194



Specific airflow resistance R_s = 2241 Pa s/m

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Laboratory: Planegg
Responsible: Siegmüller
Date: 2020-06-15

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 $q_{v,i}$ determined was calculated using the following equation:

$$R_{S,i} = \frac{\Delta p_i \cdot A}{q_{v,i}}$$

With

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

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

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

$q_{v,i}$ 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:

$$u_i = \frac{q_{v,i}}{A}$$

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 (static airflow method according to DIN EN ISO 9053-1 [1]) 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	2020-03
Software for measurement and evaluation	Müller-BBM Acoustic Solution	m|ars	1.14.7256. 28813	
Digital measuring slide	Mitutoyo	CD-15PPR	07019377	2021-03
Electronic balance	Kern	KB1200-2N	W1402353	2021-03