



Project title: NormATex (Standards for Spacer Fabrics)
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Background and problem definition

Spacer textiles consist of two parallel textile surfaces which are connected by so-called pile yarns. The structures are manufactured as woven, warp knitted or weft knitted fabrics. Applications for spacer textiles can be found wherever increased air circulation or a comfort effect is desired due to the padded structure. Warp knitted spacer fabrics, for example, are used in the automotive interior as a climate comfort layer for improved air circulation in the seat. Weft knitted spacer fabrics, on the other hand, are often used in mattress cover fabrics.

Testing and verification of the mechanical properties are essential for all applications in order to check whether the textiles meet the technological requirements. Current, spacer fabrics are tested using conventional testing methods for two-dimensional textiles. These testing devices are usually only conditionally suitable for the analysis of spacer fabrics. Due to the three-dimensionality of the textiles, the actual properties cannot be determined correctly using these methods.

Aim and approach

The aim of this project is to describe the testing of three-dimensional textiles in norms and standards. New testing methods and equipment will be developed to test spacer fabrics comparable to conventional textiles. Thus a comprehensive quality assurance of the textiles and a reproducibility of spacer fabrics is ensured. Furthermore, development times are reduced, since the testing of new spacer textiles no longer leads to false statements about the mechanical properties.

To achieve this goal, various spacer fabrics are tested using conventional test methods. The causes of faults in the testing of spacer fabrics (woven, warp knitted and weft knitted) are analysed. Based on these findings, new test methods are developed and converted into norms and standards for the testing of three-dimensional spacer fabrics.

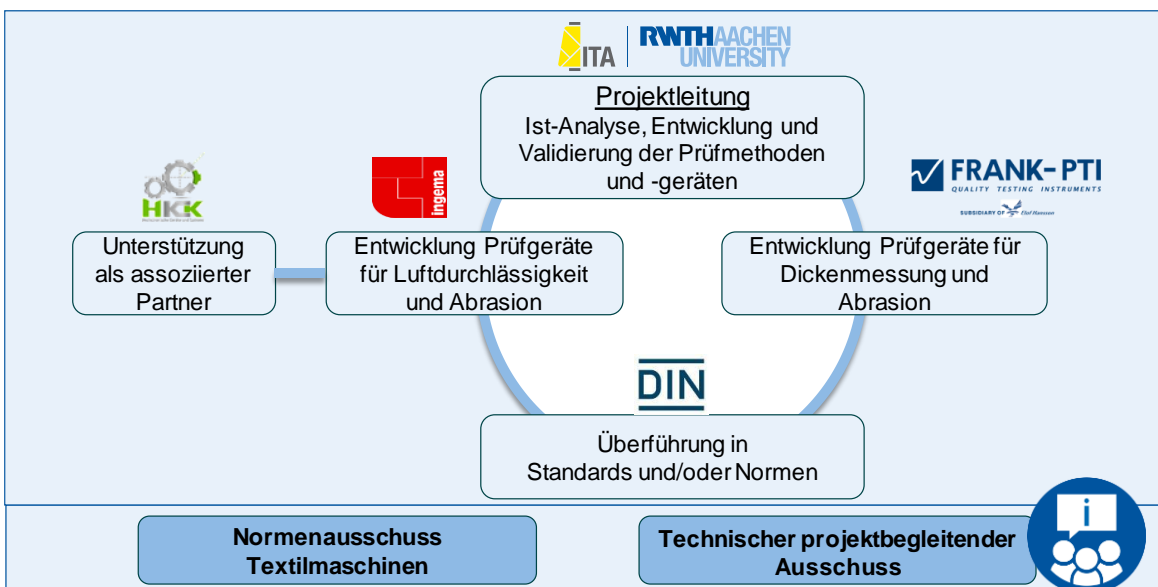
The testing standards investigated in the project are:

- Thickness
- Compressibility
- Area weight
- Air permeability
- maximum tensile strength
- Abrasion resistance
- and sample preparation

Acknowledgement

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The project is accompanied by a user-related technical committee and a standards committee for the development of the standardization text (figure below).



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