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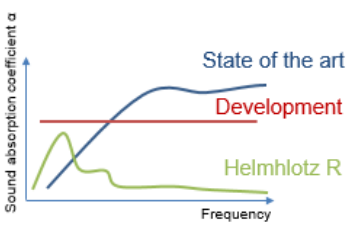
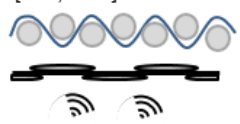
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Re.: CB
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Project title: PSSST – Production of a Sound- and Sun- protection Textile
Partner: Gebrüder Coltsman GmbH & Co. KG, Essen
Duration: 07 / 2017 – 06 / 2019
Funding Agency: BMWi - ZIM
 (Zentrales Innovationsprogramm Mittelstand)

The aim of the project is the absorption of both high and low frequencies by a universal sound absorber woven fabric.

Mission Statement

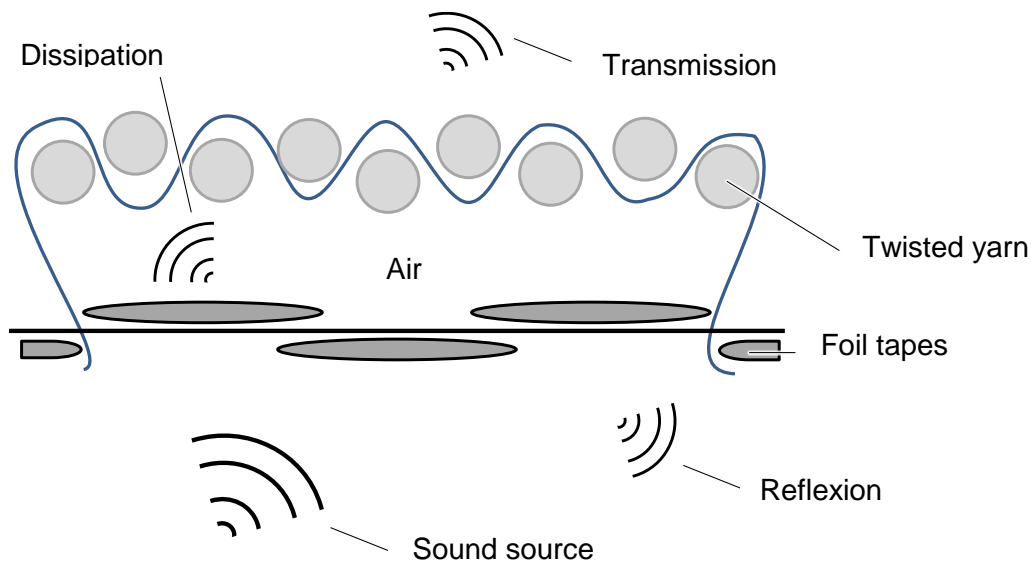
<p>Problem Noise reduces work output by 20% (REFA, VDI) No panel curtain with universal sound absorption coefficient: $\alpha < 0.65$ available over frequency range $f=[200;5000]$ Hz</p>		
<p>State of the art</p> <p>Acoustic insulation for frequency range $f < 500$ Hz: resonance absorber (solid plates) $f > 2000$ Hz: porous absorbers (woven fabrics)</p> <p>Flat woven fabrics: α -30 % compared to folded fabrics</p>	<p>Development</p> <p>Multi-layer woven fabric made of foil tapes and twisted polyester yarns</p> 	<p>Result</p> <p>Universal sound absorber woven fabric as rolled goods</p> <p>Sound absorption coefficient: $\alpha \geq 0,65$ for $f=[200;5000]$ Hz</p> 
<p>Relevance > 7,5 mio. open-space offices in germany Assumption First 5 years: 1 % equipped with acoustic curtains, 4 m² window surface / office → 150,000 m²; sales price: 50 €/m² → turnover: 7.5 Mio. € / year</p>		

Problem

According to a survey by Ergo insurance 22% of employees in offices feel disturbed by noise [www1]. Noise causes stress, affects concentration and leads to tension at work. Textile sound absorbers are used to reduce this noise in office rooms. Porous materials absorb high frequencies whereas dense and heavyweight materials absorb low frequency ranges. There is a need for universal sound absorbers for window panels. An acoustically effective panel curtain with a sound absorption level of $\alpha > 0.65$ at a frequency range of $f[200;5000]$ Hz is absolutely new and has not yet been developed.

Approach

The result of the project "PSSST" is a universal sound-absorbing woven fabric with elements for the absorption of both high and low frequencies. The sun protection roller blind consists of foil tapes and flame-resistant PET twisted yarns, which are woven on a partial warp beam system (TKB system). The fabric is a multi-layer structure with enclosed air chambers.



Acknowledgement

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