Project title:	Abrasion-resistant Yarn Guide for Texturing Spun-dyed Filament Yarns
Partner:	Federnfabrik Subtil GmbH, Reiskirchen-Ettingshausen, Germany; Emil BRÖLL GmbH & Co.KG, Dornbirn, Austria
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Univ.-Prof.
Prof. h.c. (Moscow State Univ.)
Dr.-Ing. Dipl.-Wirt. Ing.
Thomas Gries
Director

Lukasz Debicki
Research Assistant

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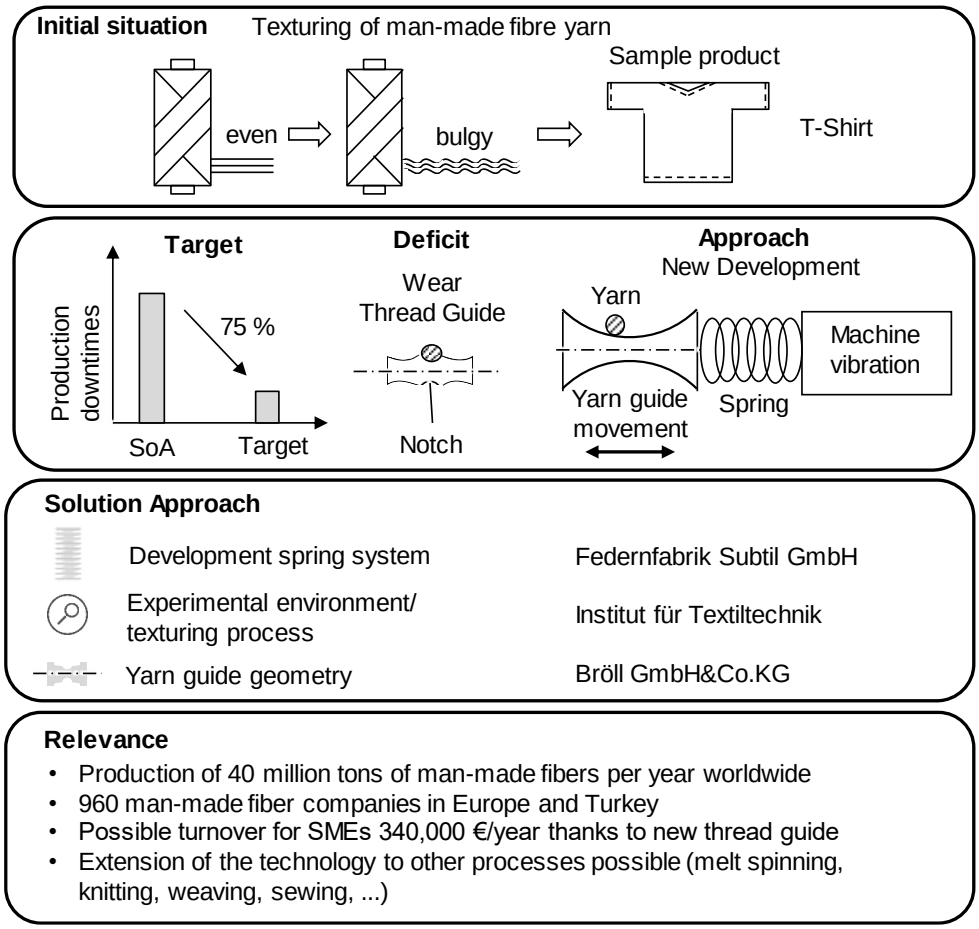
Mission Statement

The trend towards spun-dyed yarns is unbroken. In addition to better colour fastness and cost advantages in production, this is also due to stricter environmental regulations for dyeing industry. The false-twist texturing process is a further processing step for melt-spun man-made fiber yarns. In this process, the previously straight yarn is given a bulk-like texture and thus natural fibre-like properties. 60 % of the filament yarns produced are subjected to this process. In melt spinning and texturing, as well as in numerous other processes in textile technology, yarn guides are key components and serve to guide yarn in a targeted manner. A central aspect here is the unchanged surface of the thread-guiding ceramic component. Only if this does not wear out, a constant quality of the yarn can be guaranteed. Products available on the market meet these requirements very well for most yarn materials. The use of ceramic yarn guides is critical for yarn materials that are highly abrasive. These include spun-dyed filament yarns (e.g. carbon black) as used in the automotive industry. In this case, yarn guides in further processing processes, such as texturing, wear out after 3 months, in extreme cases after a few days. In addition to the cost of repeatedly re-equipping the machines, the yarn producer incurs costs (of the order of 120,000 €/year) due to production downtimes.

The aim of this project is to reduce downtimes in the production of textured filament yarn from spun-dyed yarns. The goal will be achieved by developing a yarn guide that has a four times longer service life (1 year) than currently used yarn guides. The extension of the service life is achieved by a movement between the yarn and the yarn guide. The area on which the yarn runs over the yarn guide is increased and cutting of the yarn into the ceramic is prevented. The following approach is used to implement the movement: through the development of a spring-loaded holder and a corresponding yarn

guide geometry, the system is set in motion by the coupling of an oscillation. The thread then changes its position on the thread guide and is no longer constantly guided past the same position.



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Contact

Dipl.-Ing. Lukasz Debicki
Research Assistant
Institut für Textiltechnik der RWTH Aachen University
Otto-Blumenthal-Str. 1
52074 Aachen, Germany
Phone: +49/(0)241/80 234 75
Fax: +49/(0)241 80 22422
Lukasz.Debicki@ita.rwth-aachen.de
www.ita.rwth-aachen.de

Lisa Huck, M.Sc.
Research Assistant
Institut für Textiltechnik der RWTH Aachen University
Otto-Blumenthal-Str. 1
52074 Aachen, Germany
Phone: +49/(0)241/80 220 88
Fax: +49/(0)241 80 22422
Lisa.Huck@ita.rwth-aachen.de
www.ita.rwth-aachen.de