

### Development of effective fulling technology in the hat production

The project aims for innovation and automation of fulling technology in the production of hat semi-products, which will improve the quality and utility features of produced felt and will greatly reduce the energy intensity of production. Objective includes research and development of felt semi-products fulling process with higher efficiency and shortening the fulling time. Partial aim is to develop a fulling machine with significantly reduced energy demands, using electronic control and with the application of advanced materials. The purpose of the aid is to increase the competitiveness and export to foreign markets. The results of the project will contribute to strengthening the position of the Czech industry which deals with headwear and felt hat production by fundamental innovation of the fulling technology. This innovation will streamline the production of hat semi-products in the hat production, and will ensure the improvement of their utility features. The developed fulling technology will further increase the productivity and quality of felt hat production along with reducing the share of manual labour, it will significantly reduce the energy intensity of production, including a reduction in other operating expenses for machinery maintenance. All this would serve to enhance the sustainability of the felt hat production. Applied results of the project will facilitate the penetration of new markets requiring high quality products including markets with woollen hats and thereby enhance the competitiveness of the Czech Republic in the manufacture of hats and felt. Production of headwear in the Czech Republic is among the industry that more than 90% of the products exports to foreign markets. The project pursues the objectives 2.2.2 of R&D Priorities and by its solution it will strengthen the competitiveness of felt hats by increasing their utility features and increasing the efficiency of the fulling technology.

Code	FV10467
State providing funder	Ministry of Industry and Trade of The CR <a href="https://www.mpo.cz/en">https://www.mpo.cz/en</a>
Programme	FV – TRIO (2016-2022)
Total eligible costs	9 105 000 CZK
Total project subsidy	6 145 000 CZK
Subsidy FME TUL	3 990 000 CZK
TUL project number	17776
Contractor	TONAK a.s. <a href="https://www.tonak.cz/">https://www.tonak.cz/</a>
Project participant	TUL, Faculty of Mechanical Engineering
Principal investigator TUL	prof. Ing. Jaroslav Beran, CSc.
Department	Department of Textile Machine Design <a href="http://www.kts.tul.cz/en/uvod">http://www.kts.tul.cz/en/uvod</a>
Period	2016-2019

<https://www.rvvi.cz/cep?s=rozsirene-vyhledavani&ss=detail&n=0&h=FV10467>

Costs (year) TUL	2016	2017	2018	2019	Total
Non-investment (CZK)	369 000	1 433 000	1 341 000	847 000	3 990 000
Investment (CZK)	0	0	0	0	0
<b>Total (CZK) TUL</b>	<b>369 000</b>	<b>1 433 000</b>	<b>1 341 000</b>	<b>847 000</b>	<b>3 990 000</b>

#### Project results EN

2018	Research report	<a href="#">RIV/46747885:24210/18:00006002 - Vývoj efektivní technologie valchování při výrobě klobouků. Zpráva projektu FV-10467 za rok 2018 (2018)</a>
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