

Increasing of working life of conveyor belts affected by shocks

The project is conceived as complex research of conveyor belts affected especially by shocks loading. The main task of this is to increase the working life of conveyor belt based on optimization of size and shape of transported parts, dropping height, design of the belt and impact area. Project contains theoretical, experimental and numerical analyses. The best types of modifications will be realized in the mining company. Project is oriented especially to optimization of shifting using of detailed numerical models (FEA and MBS), new design concepts and materials. Project also proves possibilities for size and shape monitoring of transported parts and advantages of ceramic drums from economic point of view.

Code	FR-TI4/310
State providing funder	Ministry of Industry and Trade CR https://www.mpo.cz/en/
Programme	FR - TIP (2009-2017)
Total eligible costs	10 900 000 CZK
Total project subsidy	7 255 000 CZK
Subsidy FME TUL	3 500 000 CZK
TUL project number	17670
Contractor	IDIADA CZ a.s. http://www.idiada.cz/?lang=en_us
Project participant	TUL, Faculty of Mechanical Engineering
Principal investigator TUL	doc. Ing. Iva Petříková, Ph.D.
Department	Department of Applied Mechanics http://www.fs.tul.cz/en/mechanics/mechanics-of-solid-phase/research-and-innovations/
Period	2012-2014

<https://www.rvvi.cz/cep?s=jednoduche-vyhledavani&ss=detail&n=0&h=FR-TI4%2F310>

Costs (year) TUL	2012	2013	2014	Total
Non-investment (CZK)	1 310 000	1 120 000	1 070 000	3 500 000
Investment (CZK)	0	0	0	0
Total (CZK) TUL	1 310 000	1 120 000	1 070 000	3 500 000

Project results

2014	RIV/25949896: /14:#0000006 - Material and component testing of conveyor belts and its numerical analyses (2014)
2014	RIV/25949896: /14:#0000007 - Numerical models of rubber-textile composites of conveyor belts (2014)
2012	RIV/46747885:24210/12:#0002745 - INCREASING OF WORKING LIFE OF CONVEYOR BELTS AFFECTED BY SHOCKS (2012)
2013	RIV/46747885:24210/13:#0005658 - Experimental evaluation of mechanical properties of belt conveyor with textile reinforcement and numerical simulation of its behaviour (2013)
2014	RIV/46747885:24210/14:#0006372 - DETERMINATION OF MATERIAL PARAMETERS OF RUBBER AND RUBBER COMPOSITES BY BIAXIAL LOADING (2014)
2014	RIV/46747885:24210/14:#0006667 - Algorithm For Chute Motion Control (2014)
2015	RIV/46747885:24210/15:00002948 - Algorithm for Automatic Chute Motion Control (2015)
2015	RIV/46747885:24210/15:00002950 - Automatický systém pro reduci pádové výšky přepravovaného materiálu mezi pohonnou stanicí příchozího pásového dopravníku a vratnou stanicí odchozího pásového dopravníku (2015)

2015		RIV/46747885:24210/15:00002951 - Digital Image Correlation as a Measurement Tool for Large Deformations of a Conveyor Belt (2015)
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