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Type of study: combined study
Year: 7
Branch of study: Manufacturing Technology
Supervisor: prof. Ing. Miroslav Píška, CSc.



Education and academic qualification

- 2003, Bc., Faculty of Mechanical Engineering Brno University of Technology, Institute of Manufacturing Technology, subject of the work: Non-Conventional Material Removal Processes - Water Jet Cutting and Abrasive Water Jet.
- 2006, Ing., Faculty of Mechanical Engineering Brno University of Technology, Institute of Manufacturing Technology, subject of the work: Non-Conventional Material Removal Processes - Water Jet Cutting and Abrasive Water Jet.

Career overview

- 1994-to date, External worker, leader of spare-time activity in Center of Spare-time Activities Lužánky Brno,
- 1996-to date, Businessman, realization of expositions,
- 2002-to date, Leader of spare-time activity in Institute for Social-service Work for Handicapped Children Kociánka

Pedagogic activities

- At University of Technology
- - Manufacturing technology
- - Experimental methods
- - Special technologies of manufacturing
- Outside University of Technology
- - Leader of the hobby group in Center of spare-time activities Brno
- - Leader of the hobby group in Institute for Social-service Work for Handicapped Children Kociánka

Publications:

- PÍŠKA, M.; SLANÝ, M.:
On the Reaming of Austenitic Steels with Coated Cermets,
Annals of DAAAM for 2011 & Proceedings of the 22th International DAAAM Symposium in Vienna, pp.0117-0118, ISBN 978-3-901509-83-4, (2011), DAAAM International Vienna
conference paper

akce: Annals of DAAAM for 2011 & Proceedings, Of The 22nd International DAAAM Symposium "Intelligent Manufacturing & Automation: Power of Knowledge and Creativity", Vienna, 23.11.2011-26.11.2011

- SEDLÁK, J.; ŘÍČAN, D.; NEJEDLÝ, J.; PTÁČKOVÁ, M.; ZOUHAR, J.; SLANÝ, M.:
Comparison of materials produced by classical and modern additive (DMLS method) powder metallurgy,
The International Conference NEWTECH 2011 on Advanced Manufacturing Engineering, pp.205-210, ISBN 978-80-214-4267-2, (2011), LITERA BRNO
conference paper
akce: NEWTECH 2011, Brno, 14.09.2011-15.09.2011
- PÍŠKA, M.; SLANÝ, M.; MADAJ, M.; POLZER, A.:
Vliv procesních kapalin na aktivní a pasivní silové složky při vrtání, řezání závitů a vystružování,
Technický týdeník, Vol.2010, (2010), No.2, pp.13-17, ISSN 0040-1064, Česká strojnická společnost
journal article
akce: Mazání v moderním průmyslovém podniku, Nové Město na Moravě, 28.04.2010-29.04.2010
- SEDLÁČEK, J.; SLANÝ, M.:
Analysis od delamination in drilling of composite materials,
MM Science Journal, Vol. Vol. 3, (2010), No.6, pp.194-197, ISSN 1803-1269, MM Science
journal article
- PÍŠKA, M.; SLANÝ, M.; MADAJ, M.; POLZER, A.:
Vliv procesní kapaliny na aktivní a pasivní silové složky při vrtání, řezání závitů a vystružování,
Mazání v moderním průmyslovém podniku, pp.10-15, ISBN 978-80-02-02237-4, (2010), Česká strojnická společnost
conference paper
akce: Mazání v moderním průmyslovém podniku, Nové Město na Moravě, 28.04.2010-29.04.2010
- SLANÝ, M.; DVOŘÁK, J.; DVOŘÁKOVÁ, J.:
Statistical analysis of input data in AWJ cutting technology,
Moderní výrobní technologie pro 21.století, pp.51-56, ISBN 978-80-214-3914-6, (2009), Akademické nakladatelství CERM, s.r.o. Brno
conference proceedings
akce: New Manufacturing Technologies for The 21st Century, Brno, 15.10.2009-15.10.2009
- DVOŘÁKOVÁ, J.; DVOŘÁK, J.; SLANÝ, M.:
Aplikace umělé inteligence na analýzu vstupních parametrů a materiálových charakteristik pro technologii AWJ,
Výrobné inženýrstvo, Vol.2009, (2009), No.1, pp.24-28, ISSN 1335-7972, Fakulta výrobních technologií Technickej univerzity v Košiciach so sídlom v Prešov, Bayerova 1, 080 01 Prešov, Slovensko
journal article

Abstracts of most important papers:

- PÍŠKA, M.; SLANÝ, M.:
On the Reaming of Austenitic Steels with Coated Cermets,
Annals of DAAAM for 2011 & Proceedings of the 22th International DAAAM Symposium in Viena, pp.0117-0118, ISBN 978-3-901509-83-4, (2011), DAAAM International Vienna
conference paper
akce: Annals of DAAAM for 2011 & Proceedings, Of The 22nd International DAAAM Symposium "Intelligent Manufacturing & Automation: Power of Knowledge and Creativity", Vienna, 23.11.2011-26.11.2011
High effective cermet reaming of austenitic steel with cutting speeds 40-100 m/min, feed per revolution 0,2 - 0,8 mm and flood cooling has been analysed. A CNC machining sequence including solid carbide drilling, a semi-finishing carbide boring and cermet reamer finishing of the stainless steel AISI 316L were used and analysed. The results show a very effective cutting with surface roughness Ra bellow 1.0 um, with high accuracy of IT5 and convenient specific energy.
- SEDLÁČEK, J.; SLANÝ, M.:
Analysis od delamination in drilling of composite materials,
MM Science Journal, Vol.Vol. 3, (2010), No.6, pp.194-197, ISSN 1803-1269, MM Science
journal article
The aim of this work is to clarify the interaction mechanisms between the drilling tool and material. Among the defects caused by drilling, delamination appears as to be of the most critical and may occurs at both the entrance and exit plane. This paper presents a prediction Hocheng-Dharan model of thrust force for drilling without delamination. HSS twist drills with different geometry were used for drilling of carbon/epoxy composites. Experiments were performed to validate physical model of delamination and investigate the effect of tool geometry and drilling paramenters on delamination. The results showed that proposed delamination model is adequate and that damage around drilling hole can be reduced significantly by proper selection of drilling conditions.
- SLANÝ, M.; DVOŘÁK, J.; DVOŘÁKOVÁ, J.:
Statistical analysis of input data in AWJ cutting technology,
Moderní výrobní technologie pro 21.století, pp.51-56, ISBN 978-80-214-3914-6, (2009), Akademické nakladatelství CERM, s.r.o. Brno
conference proceedings
akce: New Manufacturing Technologies for The 21st Century, Brno, 15.10.2009-15.10.2009
Paper provides the research focused on analysis of input data for supporting AWJ technology. There is immediate relation between species of workpiece material and final results obtained after AWJ cutting. Many variables and characteristics have big influence on quality finish and all characteristics of material kerf after abrasive water jet cutting (AWJ) process. That is why we need to make list of all inputs, set down their influence on AWJ process and make quantification and qualification also. We can say that only experiences of elder workers or specialists allow to get right setting of all input parameters AWJ machine and to get effective production also. This output should be used for better prediction of secondary inputs (cutting conditions for setting AWJ machine), and for studying of relationship and resemblance between input "unknown" material characteristics and known material obtained from made

experiments, saved into base of data.

- **DVOŘÁK, J.; DVOŘÁKOVÁ, J.; SLANÝ, M.; PÍŠKA, M.:**
ARTIFICIAL INTELLIGENCE IN DEFINITION OF MATERIAL ENTER DATA THAT DETERMINE QUALITY FINISH AFTER AWJ CUTTING PROCESS,
Annals of DAAAM for 2007 & Proceedings of the 18th International DAAAM Symposium in Zadar, pp.263-264, ISBN 3-901509-58-5, (2007), Published by DAAM International
conference paper
akce: Intelligent Manufacturing and Automation: Focus on Young Researches and Scientists, Vienna, 19.10.2005-22.10.2005

Tolerance of setting AWJ cutting parameters on each material have big influence on quality finish and all characteristics of material kefr after cutting process. There is direct relation between species of workpiece material and final results obtained after AWJ cutting. Thus there is a need to have a tool for right material setting, choosing optimal cutting parameters and finding relations between each variables of cutting process. Using of information technology specially machine learning methods should be the right way. From all methods the Receptive Field Weighted Regression (RFWR) can be used as a function approximator for different mapping tasks like learning the value function for reinforcement learning. After learning process we can do several operations with obtained data base, like a choosing of cutting conditions for new or incomplete deffined material or finding relations between each properties of AWJ process.

- **DVOŘÁKOVÁ, J.; DVOŘÁK, J.; SLANÝ, M.; PÍŠKA, M.:**
CREATING OF KNOWLEDGE BASE AS A SUPPORT FOR CHOOSING OPTIMAL CUTTING CONDITIONS IN AWJ TECHNOLOGY,
Annals of DAAAM for 2007 & Proceedings of the 18th International DAAAM Symposium in Zadar, pp.265-266, ISBN 3-901509-58-5, (2007), Published by DAAM International
conference paper
akce: Intelligent Manufacturing and Automation: Focus on Young Researches and Scientists, Vienna, 19.10.2005-22.10.2005

Treere are many variables and characteristics of water jet and abrasive water jet that have influence on stock removal and surface finish. Thus there is a need to use old experiences for new cases especially by creating database with all variables and knowledges. It is easy to get optimal solution by using knowledge base of acquired data and information. It allows us to find new trends in characteristics; new relations between material characteristics and cutting process and to choose optimal cutting conditions also.