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Education and academic qualification

- 1984, Dipl. Ing. in Mechanical Engineering, Technical University of Brno
- 1989, PhD. in Manufacturing Engineering, Technical University of Brno
- 2001, Associate Professor, Manufacturing Technology, Brno University of Technology
- 2009. Professor, Manufacturing Technology, Brno University of Technology, FME

Career overview

- 1979-1983, Technologist SLOVSTROJ Company, Uhersky Brod
- 1985-1989, Research worker, TU of Brno
- 1989-1997, Lecturer, The Institute of Technology, TU of Brno
- 1997–1998, Royal Society/NATO, The University of Sheffield, Postdoctoral Researcher
- 1998-2001, Reader, The Institute of Technology, TU of Brno
- 2001-2009, Associate Professor, The Institute of Technology, TU of Brno
- 2009-now, Professor, BUT Brno

Pedagogic activities

- CNC Machining
- Technology of Production
- Technology of Machining

Scientific activities

- Analyses of cutting tool performance. New PVD/CVD coating for machining.
- Tribology of chip-tool interface.
- Design of cutting tools.
- Mechanism of chip formation.
- CNC Machining.
- Optimisation of machining.

Academic interships abroad

- 1990 - CAD/CAM Training course, Delcam, Birmingham, UK - student
- 1994 - ILS Exeter, UK - student
- 1995 - Studio school, Cambridge, UK - student
- 1996 - ILH Edinburgh, UK - student
- 1997-1998, The University of Sheffield, The University of Sheffield, Clinical Science Centre - senior research worker
- 2005 - Siemens, Erlangen, Germany - CNC specialist
- 2007 - EAC Hastings
- 2007 - TC SIEMENS, Erlangen, Germany
- 2007 - ENSAM Cluny, France
- 2007 - DTU Lyngby, Denmark
- 2008 - TC SIEMENS, Erlangen, Germany
- 2009 - ENSAM Cluny, France, KTH Stockholm
- 2010 - A&M ParisTech, Cluny, France
- 2011 - State Sankt-Petersburg Polytechnical University

University activities

- 1992-2003, Member of Faculty Senate FME BUT
- 2003-2004, Director of Institute of Manufacturing Technology, Head of Machining Technology
- 2004-up to now, vice-director of Institute of Manufacturing Technology, Head of Machining Technology
- 2005-up to now, Member of Faculty Senate FME BUT
- 2006-now Member of Scientific Board of FME BUT
- 2006-now Director of Institute of Manufacturing Technology, Head of Machining Technology
- Member of Scientific Board of FME BUT and CTU FME Prague

Non-University activities

- 2001-2003, member of Czech Universities Advisor Board
- 2003-member The Gold Medal Committee Brno Grand Fair
- 2004-now Chairman of The State Competition for CNC Programming
- 2008 - member of GACR Panel 107
- 2009 - now, Advances in Manufacturing Science and Technology (Polish Academy of Science) member of editorial advisory board (EAB), member of MM Science EAB, member of Industrial Engineering EAB (Slovakia)

Prizing by scientific community

- 1984, Gold Medal of Technical University of Brno
- 1989, The Dean`s Prize for Achievements and Progress in Science
- 2011, Honour Medal of The State Sankt-Petersburg Polytechnical University
- 2011, The Acknowledgement of The Technical University in Galati for the long-term scientific collaboration

Projects

- Píška, M.: The Technology of Drilling and External Sceletal Fixation in Orthopaedics (grant GACR CZ 101/93/0569 BUT FME, 1993-95; 1.2 mil. CZK)
- Piska, M.: The Technology of Drilling and External Sceletal Fixation in Orthopaedics (grant The Royal Society/NATO/96B/BLL: (The University of Sheffield, Clinical Science Centre, 1997; 10,500 GBP)
- Piska, M.: NS97/12/168: Effects of the advanced wire technology on the external fixation of fractures (The University of Sheffield, Clinical Science Centre, Nothern General Hospital, 1997-98, nositel: Prof. Saleh, M., FRCS, MSc.; 22,000 GBP)
- co-partner: grant GACR CZ 101/98/0855 Manufacturing technologies of new composite materials made from home production (head: Doc.Ing. A. Humár, CSc.,1998-2000; 2.4 mil. CZK)
- Piska, M.: Innovation of NC laboratory for CAM learning (Project of MEYS FRVS N. 1585 T.O. H, 2000; 1,35 mil. CZK)
- Piska, M.: Up-grade of measuring and production technologies. A modernisation of CNC laboratory for teaching of machining technology subjects (MEYS 2001; 1,4 mil. CZK)
- Píška, M.: Innovation of C2 laboratory BUT FME. BUT Investment project for development, 2004 (5.6 mil. CZK)
- Píška, M.: Programme for international education at BUT FME.(BUT Development project, 2005, 2 mil. CZK)
- Píška, M.: Innovation of the bachelor, masters and doctoral study programmes in the field of Manufacturing Technology, Manufacturing Technology and Management of Industry, Production Technology a Management of Industry. Project ESF, OP RLZ CZ.04.1.03/3.2.15.1/0075, 2005-2007, 2.6 mil. CZK)
- TA02011362:On the aplication OF progressive technologies and materials into aerosol can production. 2012-2013
- MUBEA-BUT: R&D 061331007352: New Technologies for Advanced Manufacturing. 2012-2017.
- |Participation in research projects: Cimcool Cincinnati Milacron (Netherland), SHM Šumperk, LISS Platit, Czech Coating, Struers (Denmark), Pramet Tools, ZPS- FN Zlín, LASAK Praha, TU Mnichov, TU Haifa, MEDIN, Orthofix (Italy)

National citations

81

International citations

38

Supervised courses:

- Applications of CAD/CAM in Technology of Machining (9ATO)
- Bachelor Project (B2307) (FDT)
- Bachelor Project (B2307) (FDT-K)
- Bachelor Seminar (B2307) (FET)
- Bachelor Seminar (B2307) (FET-K)
- CNC Technologies of Machining (9CTO)
- Diploma Project (M2307-01) (HD1)
- Diploma Project (M2307-01) (HD1-K)
- Diploma Seminar (M2307-01) (HD2)
- Diploma Seminar (M2307-01) (HD2-K)
- Diploma Seminar (M2328) (HD8)
- Diploma Seminar (M2328) (HD8-K)
- Experimental Methods in Machining (9EMO)
- Machining technology (DTB)
- Machining technology (DTB-K)
- Machining Technology (BtoP)
- Semester project (HSP-A)
- Technology of CNC Machining (HNC-A)
- Technology of CNC Machining (HNC-AK)

Publications:

- PILNÝ, L.; DECHIFFRE, L.; PÍŠKA, M.; VILLUMSEN, M.:
Hole quality and burr reduction in drilling aluminium sheets,
CIRP Journal of Manufacturing Science and Technology, Vol.2012, (2012), No.5,
pp.102-107, ISSN 1755-5817, Elsevier
journal article
akce: NEWTECH 2011, Brno, 14.09.2011-15.09.2011
- 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*
- HÁJEK, V.; PÍŠKA, M.:
**Taguchi statistical method used for optimization of the TiAlCN UniCut coating
for saw band cutting application,**
The International Conference NEWTECH 2011, pp.87-92, ISBN 978-80-214-4267-2,
(2011), BUT
conference paper
akce: NEWTECH 2011, Brno, 14.09.2011-15.09.2011
- VEPREK, S.; PÍŠKA, M.:
**Oxygen Impurities in Ti-Si-N and Related Systems are Hindering the Phase
Segregation, Formation of Stable Nanostructure and Degrading the Cutting
Performance of Tools Coated with the Nanocomposites,**

20th International Symposium on Plasma Chemistry <http://ispc20.plasmainstitute.org/>, pp.54-57, ISBN 9241562676, (2011), A.J. Drexel Plasma Institute
presentation

- SLANÝ, J.; POLZER, A.; PÍŠKA, M.:
On the effective reaming of austenitic steels On the effective reaming of austenitic steels with cermet reamers and flood cooling,
Proceedings of the SPS 11, pp.228-234, (2011), The Swedish Production Academy
conference paper
akce: SPS 11 The 4th International Swedish Production Symposium, Lund, 03.05.2011-05.05.2011
- DECHIFFRE, L.; TOSELLO, G.; PÍŠKA, M.; MULLER, P.:
Investigation on capability of the reaming process using minimal quantity lubrication,
CIRP Journal of Manufacturing Science and Technology, Vol.2, (2009), No.1, pp.47-54, ISSN 1755-5817, Elsevier
journal article
- PÍŠKA, M.; POLZER, A.; CIHLÁŘOVÁ, P.; POLZEROVÁ, D.:
On the Structural Integrity of the nano-PVD Coatings Applied On Cutting Tools,
Damage and Fracture Mechanics Failure Analysis of Engineering Materials and Structures, pp.195-204, ISBN 978-90-481-2668-2, (2009), Springer
book chapter

Abstracts of most important papers:

- PILNÝ, L.; DECHIFFRE, L.; PÍŠKA, M.; VILLUMSEN, M.:
Hole quality and burr reduction in drilling aluminium sheets,
CIRP Journal of Manufacturing Science and Technology, Vol.2012, (2012), No.5, pp.102-107, ISSN 1755-5817, Elsevier
journal article
akce: NEWTECH 2011, Brno, 14.09.2011-15.09.2011
Optimization of the metal drilling process requires creation of minimum amount of burrs and uniform appearance of the drilled holes. In this paper, an experimental investigation was performed on 2 mm sheets of wrought aluminium alloy Al99.7Mg0.5Cu-H24, using 1.6 and 2 mm diameter drills. Cutting data, clamping conditions, and drill geometry were varied in order to optimize the process and reach the desired quality. The results revealed possible reduction of burr occurrence on both the entry and exit side of the sheet, requiring no additional deburring. The demand on the uniform appearance of drilled holes was fulfilled as well as high productivity achieved. Such optimized process results in a noticeable production cost reduction.
- 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

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 below 1.0 µm, with high accuracy of IT5 and convenient specific energy.

- PILNÝ, L.; DECHIFFRE, L.; PÍŠKA, M.:
HOLE QUALITY AND BURR REDUCTION IN DRILLING ALUMINIUM SHEETS,
The International Conference NEWTECH 2011, pp.87-92, ISBN 978-80-214-4267-2, (2011), BUT
conference paper
akce: NEWTECH 2011, Brno, 14.09.2011-15.09.2011
Optimization of the metal drilling process requires creation of minimum amount of burrs and uniform appearance of the drilled holes. In this paper, an experimental investigation was performed on 2 mm sheets of wrought aluminium alloy Al99.7Mg0.5Cu-H24, using 1.6 and 2 mm diameter drills.
- HÁJEK, V.; PÍŠKA, M.:
Taguchi statistical method used for optimization of the TiAlCN UniCut coating for saw band cutting application,
The International Conference NEWTECH 2011, pp.87-92, ISBN 978-80-214-4267-2, (2011), BUT
conference paper
akce: NEWTECH 2011, Brno, 14.09.2011-15.09.2011
Taguchi methods are well recognized statistical methods suitable also for optimization and design of experiments. Taguchi statistical control over the experiment was used in the present study to optimize the TiAlCN (UniCut) coating on saw band for cutting of the 1.2344 X40CrMoV5 hot work tool steel and to avoid high number of depositions and cutting tests. TiAlCN (UniCut) is a coating of Platin AG with high toughness and hardness, and low friction coefficient devoted for an universal use.
- VEPREK, S.; PÍŠKA, M.:
Oxygen Impurities in Ti-Si-N and Related Systems are Hindering the Phase Segregation, Formation of Stable Nanostructure and Degrading the Cutting Performance of Tools Coated with the Nanocomposites,
20th International Symposium on Plasma Chemistry <http://ispc20.plasmainstitute.org/>, pp.54-57, ISBN 9241562676, (2011), A.J. Drexel Plasma Institute
presentation
We have shown earlier, that an oxygen impurity content of more than 0.4 at.p. (4000 ppm) strongly degrades the hardness of the nc-TiN/a-Si₃N₄ nanocomposites. Here we show that such impurities also hinder the phase segregation and formation of stable and strong nanostructure consisting of 3-4 nm size TiN nanocrystals "glued" together by about 1 monolayer thick interfacial Si₃N₄-like layer, thus apparently stabilizing the solid solution at high temperature of more 900C, as reported by other researchers. At the impurity content of only few hundred ppm, the segregation is completed, and a stable nanostructure formed at temperature less 550C. By decreasing the impurity content from 2000-3000 ppm down to about 1000 ppm in an industrial PVD coating equipment, the life time of cutting tools has been increased by a factor of 2.