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Keywords: tool geometry | 3D scanner | drilling tool | non-contact scanning | grinding | roughness surface

[NUMERICAL MODELLING OF OSCILLATING FLOW FOR ENERGY HARVESTING](#)

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Keywords: energy harvesting | oscillating flow | fluidic oscillator | computational fluid dynamics (CFD) | experimental measurement

[DETECTION OF MECHANICAL STRESS LIMITING EFFECTS OF CRANE STRUCTURE DEFORMATION](#)

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Keywords: Shear gap | cutting tool | disc knife | burr | bellow | tube | optimization.

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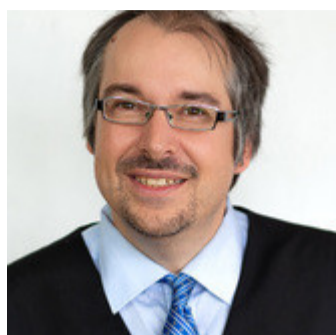
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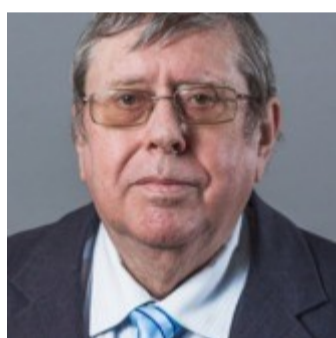
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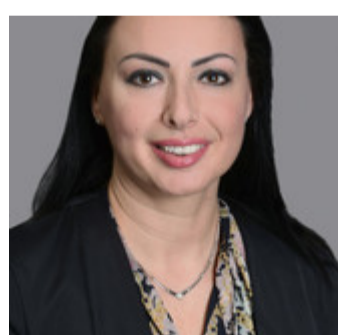
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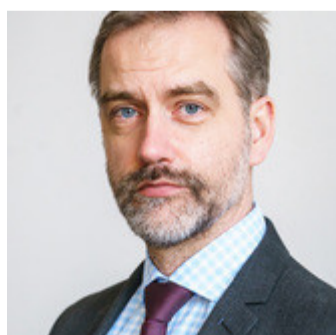
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[OPTIMIZATION OF BELLOWS AND TUBES CUTTING BY DISC KNIFE TO ACHIEVE THE MINIMUM BURR SIZE](#)

DOI : [10.17973/MMSJ.2021_12_2021104](https://doi.org/10.17973/MMSJ.2021_12_2021104)

RADEK CADA, PAVEL LOSAK

Keywords: Shear gap | cutting tool | disc knife | burr | bellow | tube | optimization.

[Download full version of the Paper \(PDF, 850 KB\)](#)

The paper solves the determination of the optimal size of the shear gap when dividing components with a circular cross section (hydroformed metal bellows and tubes) with a disc knife to achieve the smallest burr size on the divided surfaces. The analyzes were performed on bellows with an outer diameter of 15 mm and a wall thickness of 0.4 mm. During the experiments, the size of the shear gap between the (...)

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[MEASUREMENT OF THE GEOMETRY OF MANUFACTURED DRILLS USING OPTICAL SCANNING](#)

DOI : [10.17973/MMSJ.2021_12_2021128](https://doi.org/10.17973/MMSJ.2021_12_2021128)

JAKUB HRBAL, JOZEF PETERKA, IVAN BURANSKY, JAN MILDE, JOZEF MARTINOVIC

Keywords: tool geometry | 3D scanner | drilling tool | non-contact scanning | grinding | roughness surface

[Download full version of the Paper \(PDF, 1.05 MB\)](#)

This article deals with the control of the geometry of manufactured tools. The geometry of the cutting tool has a great influence on the machining process. One of the processes of manufacturing cutting tools is grinding. Grinding cutting tools is a complex process after which it is necessary to check the geometry of the tools. Five solid drilling tools were manufactured for the experiment. The measured (...)

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TOMAS BLEJCHAR, SYLVA DRABKOVA, VACLAV JANUS

Keywords: energy harvesting | oscillating flow | fluidic oscillator | computational fluid dynamics (CFD) | experimental measurement

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The energy efficiency of systems, equipment, and sensors is nowadays intensively studied. The new generation of microelectronic sensors is very sophisticated and the energy consumption is in the microwatts range. The energy to power the

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microelectronic devices can be harvested from oscillating flow in small size channels and so replaceable batteries could be eliminated. Piezoelectric elements can convert (...)

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DETECTION OF MECHANICAL STRESS LIMITING EFFECTS OF CRANE STRUCTURE DEFORMATION

[DOI : 10.17973/MMSJ.2021_12_2021107](https://doi.org/10.17973/MMSJ.2021_12_2021107)

LEOPOLD HRABOVSKY , ZDENEK FOLTA

Keywords: mechanical stress detector | double girder overhead crane | deformation of steel structure | crane skewing

[Download full version of the Paper \(PDF, 2.81 MB\)](#)

The paper presents a construction design and results of laboratory tests of so-called mechanical stress detectors, which can be used to detect the deformation of the steel structure of a crane and to amplify the mechanical signal from the effect of the so-called crane skewing, which is included among occasional loads acting on the crane. The values of the relative elongation of the detectors correspondi (...)

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DESIGN OF A COMPUTER-AIDED GEAR MANUFACTURING TOOL – RACK-SHAPED CUTTER

[DOI : 10.17973/MMSJ.2021_12_2021108](https://doi.org/10.17973/MMSJ.2021_12_2021108)

IVAN MRKVICA, TIBOR JURGA, ANETA SLANINKOVA, JOZEF JURKO, ANTON PANDA, PAVEL KRPEC

Keywords: Spur gears | straight and helical teeth | cutting geometry | clamping angles | rack-shaped cutter | T-Flex CAD program

[Download full version of the Paper \(PDF, 839 KB\)](#)

In this work, the calculation of Maag gear shaper cutter parameters is performed for spur gears with helical teeth in three variants – straight-tooth tool with machine offset, helical-tooth tool without machine offset and helical-tooth tool with machine offset. It is therefore a prerequisite that the manufactured involute gearing has helical teeth for each variant. The created CAD program is universal a (...)

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A STUDY ON FEMU: INFLUENCE OF SELECTION OF EXPERIMENTS ON RESULTS FOR ABS-M30 MATERIAL

[DOI : 10.17973/MMSJ.2021_12_2021113](https://doi.org/10.17973/MMSJ.2021_12_2021113)

JAROSLAV ROJICEK, ZBYNEK PASKA, MARTIN FUSEK, FRANTISEK FOJTIK, DAGMAR LICKOVA

Keywords: FEMU | tension tests | indentation tests | Anand material model | ABS-M30 | influence of experiments

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This paper examines the effect of experiments used to identify material parameters of a more complex material model (12 material parameters). The set of experiments includes tensile tests and indentation tests with different loading conditions at 4 different temperatures (a total of 14 experiments) for the ABS-M30 material. The behaviour of the material was simulated using Anand's material model, an (...)

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A COMPLEX CONCEPTION OF MANAGEMENT SYSTEM OF ORGANISATIONS AND SOCIAL RESPONSIBILITY

[DOI : 10.17973/MMSJ.2021_12_2021028](https://doi.org/10.17973/MMSJ.2021_12_2021028)

VERA PELANTOVA, DOMINIK KOLAR

Keywords: Social Responsibility | quality | maintenance | management system | industry 4.0 | Production; Organisation.

 [Download full version of the Paper \(PDF, 302 KB\)](#)

The difficult situation is affecting many organisations at the present time. This article mainly deals with ensuring of the quality of production on the example of a case study in one manufacturing organisation. However, it is about involving other aspects, such as: maintenance, social responsibility, process approach. Everything is based on specific findings related to the economic crisis caused by the (...)

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CONTROLLED TESTING OF BELT TRANSMISSIONS AT DIFFERENT LOADS

[DOI : 10.17973/MMSJ.2021_12_2021045](https://doi.org/10.17973/MMSJ.2021_12_2021045)

JOZEF MASCENIK, SLAVKO PAVLENKO

Keywords: stand | innovation | sensor | belt gear | monitoring

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The presented paper provides the alternative options for determining the condition of belt gear based on the testing and monitoring. In order to carry out experimental measurements, a newly developed device for testing, monitoring and diagnostics of belt drives was designed, as well as the possibility of determination of limit states by extreme loads. The designed measuring stand allows to determine the (...)

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EVALUATION OF THE RADIANT COOLING CEILING PANELS WITH A REVERSIBLE HEAT PUMP

[DOI : 10.17973/MMSJ.2021_12_2021120](https://doi.org/10.17973/MMSJ.2021_12_2021120)

MIROSLAV RIMAR, MARCEL FEDAK, ANDRII KULIKOV, OLHA KULIKOVA

Keywords: radiant cooling | ceiling cooling | reversible heat pump | energy storage

 [Download full version of the Paper \(PDF, 1.21 MB\)](#)

Thermal comfort is one of the basic prerequisites for appropriate operating of the building. Ensuring thermal comfort in the summer means creating suitable thermal conditions in the interior. The present article evaluates the operation of radiant ceiling cooling, which is a suitable alternative for conventional cooling systems. Experimental cooling systems using a reversible heat pump as a source of chi (...)

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EVALUATION OF COMBINED PRODUCTION OF HEAT AND ELECTRICITY ON THE COGENERATION UNIT

[DOI : 10.17973/MMSJ.2021_12_2021099](https://doi.org/10.17973/MMSJ.2021_12_2021099)

MIROSLAV RIMAR, MARCEL FEDAK, ANDRII KULIKOV, MILAN ABRAHAM

Keywords: efficiency | cogeneration | energy | heat | CHP

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The purpose of currently contribution is to analyse and compare effectivity of cogeneration unit in each summer and winter season. The main idea of combined heat and energy production is to reduce usage of primary fuels and with that connected reduction of pollutions due to the integration of renewable energy sources and with regard to the natural environment. Presented contribution is dedicated on issu (...)

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RESEARCH AND DEVELOPMENT OF A KNOWLEDGE-BASED DESIGN SYSTEM FOR DESIGNING SELECTED ELEMENTS OF MECHATRONIC DEVICES

DOI : [10.17973/MMSJ.2021_12_2021105](https://doi.org/10.17973/MMSJ.2021_12_2021105)

MILAN MIHOLA, ZDENEK ZEMAN, DAVID FOJTIK

Keywords: Knowledge-based | Parametric modelling | API | SolidWorks | Macro | Mechatronic

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The design of mechatronic devices is a demanding process not only in terms of the time required but also of the demands placed on the knowledge and experience of development workers. The aim of this research and development was to create suitable procedures, algorithms, and databases of 3D models, with the help of which could this process be significantly shortened and simplified. The results of the dev (...)

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DETERMINATION OF MECHANICAL PROPERTIES OF COMPOSITE SANDWICH PANEL WITH ALUMINIUM HONEYCOMB CORE

DOI : [10.17973/MMSJ.2021_12_2021132](https://doi.org/10.17973/MMSJ.2021_12_2021132)

MICHAL SKOVAJSA, FRANTISEK SEDLACEK, MARTIN MRAZEK

Keywords: numerical analysis | Carbon fibre | composite | Sandwich Experimental measurement.

[Download full version of the Paper \(PDF, 1.07 MB\)](#)

This paper deal with comparison of mechanical properties of composite sandwich panel with aluminium honeycomb core which is determined by experimental measurement, analytic calculation and numerical simulation. The goal was to compared four composite sandwich panels. The composite sandwich panels were made of two different aluminium honeycomb cores with density 32 and 72 kg.m-3 and two different layup o (...)

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DISIMILLAR LAP JOINT FRICTION STIR WELDING (FSW) USING VARIED LENGTH OF PIN

DOI : [10.17973/MMSJ.2021_12_2021121](https://doi.org/10.17973/MMSJ.2021_12_2021121)

WIDIA SETIAWAN, BERNADO PASARIBU , MUHAMMAD BADARUDIN THOH, GUSTI KETUT PUDJA, NUGROHO SANTOSO, ISWORO JATI

Keywords: Friction Stir Welding | pin | probe | Lap

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The lap joint will be used on aluminum 6061 and 10 mm thick brass with the Friction Stir Welding method. The probe used is EMS 45 steel with variations in pin lengths of 11 mm, 11.5 mm and 12 mm. The results of this study are in length 11.5 mm with the highest Vickers hardness value of 104.26 VHN compared to 11 mm and 12 mm pin length is 98.93 VHN and 70.43 VHN. The results of shear stress are 67.32 MPa (...)

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ANALYSIS OF INCREASING THE FRICTION FORCE OF THE ROBOT JAWS BY ADDING 3D PRINTED FLEXIBLE INSERTS

DOI : [10.17973/MMSJ.2021_12_2021127](https://doi.org/10.17973/MMSJ.2021_12_2021127)

JIRI SUDER, TOMAS KOT, ALAN PANEC, MICHAL VOCETKA

Keywords: fused filament fabrication | 3D Print | Flexible Filament | Friction | Robotic Gripping | Jaw

 [Download full version of the Paper \(PDF, 1.13 MB\)](#)

3D printing technology plays a key role in the production of prototypes and final functional parts. The ability to produce almost any shape using this technology in combination with lightweight materials is often used to minimise the weight of the designed components. However, for some applications, such as robot gripper jaws, conventional most commonly used materials, such as PLA, may be unsuitable due (...)

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METHODS OF CFD MODELLING OF TWIN-SCREW PUMPS FOR NON-NEWTONIAN MATERIALS

DOI : [10.17973/MMSJ.2021_12_2021103](https://doi.org/10.17973/MMSJ.2021_12_2021103)

MARIAN BOJKO, LUKAS HERTL, SYLVA DRABKOVA

Keywords: TWIN-SCREW PUMP | CFD ANALYSIS | ANSYS | NON-NEWTONIAN MATERIAL | POLYFLOW | OVERSET

 [Download full version of the Paper \(PDF, 2.02 MB\)](#)

The twin-screw pump is designed for pumping highly viscous materials in the food industry. Rheological characteristics of materials are important in the specification of design parameters of screw pumps. Analysis of flow in the twin-screw pumps with definition of non-newtonian materials can be made by numerical modelling. CFD generally oriented software ANSYS Fluent and ANSYS Polyflow has been used for (...)

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USE OF SMART 3D PRINTING TECHNOLOGY IN CONVENTIONAL ENGINEERING PRODUCTION TO DETECT AND PREVENT THE OCCURRENCE OF DEFECTS

DOI : [10.17973/MMSJ.2021_12_2021115](https://doi.org/10.17973/MMSJ.2021_12_2021115)

FILIP SPROCH, JAN NEVIMA

Keywords: SMART Technology | 3D printing | Defect | Poka – Yoke | industry 4.0 | innovation

 [Download full version of the Paper \(PDF, 909 KB\)](#)

This article aims to show how to effectively use innovation in the form of 3D printing to create simple, smart, and cheap products, which will lead to more efficient product control, reveal defects in conventional engineering production, and prevent blemishes. The article is focused on the detection and prevention of defects in classic Czech engineering manufacture using an innovative solution, which (...)

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DESIGN AND MANUFACTURING OF AN OPTIMIZED MOULD INSERT BY DMLS TECHNOLOGY

[DOI : 10.17973/MMSJ.2021_12_2021186](https://doi.org/10.17973/MMSJ.2021_12_2021186)

TOMAS CORANIC

Keywords: additive manufacturing | DMLS | topology | optimization

 [Download full version of the Paper \(PDF, 910 KB\)](#)

Utilization of the DMLS technology in manufacturing of tools and moulds designed for injection and casting ranks among significant possibilities of use. The main advantage in case of DMLS in comparison to conventional methods rests in the fact that manufacturing time does not depend on geometrical complexity of shaping part of the mould. In case of low volume or prototype moulds it is advantageous to us (...)

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PROBABILISTIC ANALYSIS OF THE MAXIMAL LOAD OF INDUSTRIAL MACHINES

[DOI : 10.17973/MMSJ.2021_12_2021106](https://doi.org/10.17973/MMSJ.2021_12_2021106)

ZDENEK FOLTA, PAVEL SKALNY, PETR MATEJKA, MIROSLAV TROCHTA, DANIEL PISTACEK

Keywords: Washing machine | measurements | force | distribution | probability.

 [Download full version of the Paper \(PDF, 757 KB\)](#)

This study describes the statistical analysis of peak forces of industrial washing machines. The data source comes from twelve different machines. The measurements are done using a force gauge installed in places for fastening screws. A new software based on LabView has been developed to gauge the acting forces. To determine extreme force values, various probability distributions are applied. Furthermor (...)

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THE COMBUSTION ENGINE INTAKE MANIFOLD CFD MODELING DEPENDING ON THE AIRBOX CONFIGURATION

[DOI : 10.17973/MMSJ.2021_12_2021112](https://doi.org/10.17973/MMSJ.2021_12_2021112)

MICHAL RICHTAR, PETRA MUCKOVA, JAN FAMFULIK, JAKUB SMIRAUŠ

Keywords: computational fluid dynamics (CFD) | combustion engine | air flow | non-stationary flow | intake trumpet

 [Download full version of the Paper \(PDF, 1.39 MB\)](#)

The aim of the article is to present the possibilities of application of computational fluid dynamics (CFD) to modelling of air flow in combustion engine intake manifold depending on airbox configuration. The non-stationary flow occurs in internal combustion engines. This is a specific type of flow characterized by the fact that the variables depend not only on the position but also on the time. The int (...)

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STRENGTH ANALYSIS OF SCREW CONVEYOR DRIVE

[DOI : 10.17973/MMSJ.2021_12_2021185](https://doi.org/10.17973/MMSJ.2021_12_2021185)

TOMAS CORANIC, JOZEF MASCENIK

Keywords: strength characteristics | Simulation | impacts in manufacturing engineering

 [Download full version of the Paper \(PDF, 547 KB\)](#)

The present paper deals with research of strength characteristics in manufacturing engineering. The introduction of the work describes findings about the importance of the given subject. The publication is divided into two basic parts, namely the

theoretical and the practical part. The theoretical part provides a detailed description of theoretical assumptions on solutions in the field of research, and (...)

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THE EFFECT OF DEEP CRYOGENIC ON TENSILE STRENGTH AND IMPACT TOUGHNESS IN QUENCH TEMPERED STEEL PLATE AS A CANDIDATE FOR BALLISTIC RESISTANCE MATERIAL

DOI : [10.17973/MMSJ.2021_12_2021119](https://doi.org/10.17973/MMSJ.2021_12_2021119)

HELMY PURWANTO, MOHAMMAD TAUVIQIRRAHMAN, MUHAMMAD DZULFIKAR

Keywords: medium carbon steel | quench temper | cryogenic | ballistic resistance

 [Download full version of the Paper \(PDF, 898 KB\)](#)

Ballistic resistant materials are materials containing right combination of hardness, strength, and toughness. The quench process produces high hardness and tensile strength but decreases toughness. The hardening process has been performed using an induction machine and a tempering process on a medium carbon steel plate. This work aimed to determine and analyze the effect of deep cryogenic treatment (DC (...)

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THE NETWORKING OF MAINTENANCE ENTITIES FOR PRODUCTION AND OTHER PROCESSES

DOI : [10.17973/MMSJ.2021_12_2021109](https://doi.org/10.17973/MMSJ.2021_12_2021109)

LIBOR NECAS, JOSEF NOVAK

Keywords: business networks | maintenance | TPM | system | costs | savings | metallurgical production

 [Download full version of the Paper \(PDF, 402 KB\)](#)

The high share of maintenance costs in manufacturing processes and their continuing low efficiency lead to a search for solutions to this problem not only in the organization and management of internal maintenance, but also in outsourcing and interconnecting the maintenance entities into separate but cooperating partner units. The creation of business networking, recently applied in manufacturing proces (...)

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INFLUENCE OF SHAPE OF PRESSURE VESSEL SHELL ON BOLT WORKING LOAD AND TIGHTNESS

DOI : [10.17973/MMSJ.2021_12_2021116](https://doi.org/10.17973/MMSJ.2021_12_2021116)

JIRI ZACAL, JAN PAVLIK, IVANA KUNZOVA

Keywords: Flange Joints | Tightness | Gasket | Bolt Pretension | Pressure Vessel | Circular Flange | Shell.

 [Download full version of the Paper \(PDF, 866 KB\)](#)

The area of flange joints with gasket includes many types of pressure vessels, which are mainly defined by the purpose of use and specific load conditions. These differences in definitions caused the existence of many types of pressure vessels with different shell shapes. Calculations of basic shapes are defined by standards. However, in some fields of engineering practice, these shapes are atypical. Th (...)

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NEW DESIGN OF PLC-BASED ROBOTIC CONTROL SYSTEM FOR CONCRETE PRINTING IN BUILDING CONSTRUCTION

[DOI : 10.17973/MMSJ.2021_12_2021051](https://doi.org/10.17973/MMSJ.2021_12_2021051)

DANIEL KAJZR, JOSEF BROUSEK, TOMAS PETR, LEOS BERAN, MARTIN DIBLIK, ROBERT VOZENILEK

Keywords: 3D printing | buildings | architecture | robotic arm | cement | concrete

 [Download full version of the Paper \(PDF, 2.35 MB\)](#)

This paper presents a new platform for the development of an open control system for a robotic arm designed for the 3D printing of buildings. This platform uses a very efficient system of automatic code generation which greatly simplifies the process of robotic arm synthesis and analysis while allowing the deployment of custom control algorithms. An experimental workplace, with a reduced and simplified (...)

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COMPARISON OF BASIC MAINTENANCE CONCEPTS USING WITNESS

[DOI : 10.17973/MMSJ.2021_12_2021114](https://doi.org/10.17973/MMSJ.2021_12_2021114)

VLADIMIRA SCHINDLEROVA, IVANA SAJDLEROVA

Keywords: maintenance | predictive maintenance | Maintenance concepts | Dynamic Simulation | witness | production

 [Download full version of the Paper \(PDF, 1.07 MB\)](#)

Maintenance is a complex, extensive and important issue in terms of its impact on the quality of manufactured products or services provided in all areas of industry. The importance of predictive maintenance for the industry in the 21st century is crucial. However, the right approach to maintenance management is often underestimated in many companies today, although it can have a very positive effect on (...)

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DESIGN OF APPARATUS FOR EVALUATION OF TEMP-DEPENDENCE OF CREEP EFFECT IN PAM

[DOI : 10.17973/MMSJ.2021_12_2021179](https://doi.org/10.17973/MMSJ.2021_12_2021179)

MONIKA TROJANOVA, ALEXANDER HOSOVSKY, TOMAS CAKURDA

Keywords: Creep Effect | Fluid Muscle | dynamics | modeling

 [Download full version of the Paper \(PDF, 1.77 MB\)](#)

The creep effect in relationship with the research of pneumatic artificial muscles represents a dynamic phenomenon characterized by slow changes in muscle displacement caused by the material's elasticity. However, the temperature of the environment in which the muscle works affects the temperature of the muscle. It also affects the creep effect itself; as a result, the process of identifying hysteresis (...)

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TECHNOLOGY OF BROACHING – RESEARCH OF THE ROUGHNESS AND MACHINE CAPABILITY

[DOI : 10.17973/MMSJ.2021_12_2021187](https://doi.org/10.17973/MMSJ.2021_12_2021187)

JOZEF MARTINOVIC, JOZEF PETERKA

Keywords: broaching | roughness | capability | profile shape | accuracy

 [Download full version of the Paper \(PDF, 895 KB\)](#)

The work deals with the technology of metal machining with a focus on the technology of broaching the internal shaped surfaces. The design of the drawing tools is a tool with several cutting edges, whereby the final shape of the inner shaped surface is made for one rectilinear movement of the tool. The cost of broaching tools is higher. For these reasons, the broaching technology is suitable for series (...)

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IMPROVING HUMAN AWARENESS DURING COLLABORATION WITH ROBOT: REVIEW

DOI : [10.17973/MMSJ.2021_12_2021181](https://doi.org/10.17973/MMSJ.2021_12_2021181)

STEFAN GRUSHKO, ALES VYSOCKY, JIRI SUDER, LADISLAV GLOGAR, ZDENKO BOBOVSKY

Keywords: Human-robot collaboration | awareness | interaction | notification | alerts | graphical interface | acoustic interface | haptic interface | Virtual Reality | mixed reality.

[Download full version of the Paper \(PDF, 1.28 MB\)](#)

Human-robot collaboration is a widespread topic within the concept of Industry 4.0. Such collaboration brings new opportunities to improve ergonomics and innovative options for manufacturing automation; however, most of the modern collaborative industrial applications are limited by the fact that neither collaborative side is fully aware of the partner: the human operator may not see the robot movement (...)

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LOAD CAPACITY OF HELICOIL® INSERTS IN ABS-M30 MATERIAL USED FOR ADDITIVE MANUFACTURING

DOI : [10.17973/MMSJ.2021_12_2021111](https://doi.org/10.17973/MMSJ.2021_12_2021111)

ZBYNEK PASKA, JAROSLAV ROJICEK, FRANTISEK FOJTIK, VACLAV KRYS, MARTIN FUSEK, DAGMAR LICKOVA

Keywords: HELICOIL® FEM simulation | HELICOIL® experiments | ABS-M30 | additive manufacturing | Cohesive contact

[Download full version of the Paper \(PDF, 1.67 MB\)](#)

This paper deals with experimental investigations and numerical simulations of HELICOIL® inserts in ABS-M30 plastic. The aim is to explore the possibilities of modelling HELICOIL® inserts using Finite Element Method (FEM) and thus predict the load-bearing capacity of these inserts. The motivation was based on a previously published article that dealt with the topological design of the robot manipulator (...)

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REDUCTION OF METAL CATIONS CONTENT FROM THE AQUEOUS SOLUTIONS BY SORBENTS

DOI : [10.17973/MMSJ.2021_12_2021044](https://doi.org/10.17973/MMSJ.2021_12_2021044)

IVETA PANDOVA, MIROSLAV RIMAR

Keywords: Zeolites | nickel | copper | sorption | kinetic | wastewater

[Download full version of the Paper \(PDF, 655 KB\)](#)

The article presents the results of research on reducing the concentration of heavy metals, such as copper and nickel, on natural zeolite in comparison with synthetic zeolite and chemically treated natural zeolite. The reduction of the content of specific types of heavy metals from aqueous solutions was investigated by the method of sorption kinetics. The results indicate the ability of natural zeolites (...)

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[NEW BEARING STEEL FOR HIGH-SPEED APPLICATIONS](#)

DOI : [10.17973/MMSJ.2021_12_2021129](https://doi.org/10.17973/MMSJ.2021_12_2021129)

CHRISTIAN BRECHER, STEPHAN NEUS, MARCUS GAERTNER, LEONARDO CATANA,
FELICIANO GRECO, GUILLERMO MORALES-ESPEJEL, DEFENG LANG

Keywords: Spindle bearings | test rig | bearing steels | contact pressures | wear parameter | motor spindles | lifetime prediction

[Download full version of the Paper \(PDF, 2.11 MB\)](#)

The requirements for speed suitability and fatigue strength of motor spindle bearings are constantly increasing. These challenges can be met by further developing the spindle bearings, e.g. by using higher-performance bearing steels. In the following, the experimental investigation results of a spindle bearing made of a new raceway steel tested on a high-speed rolling bearing test rig are presented. Spi (...)

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