
ABSTRACTS

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Universal tester of length sensors

(pages 27-31)

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Keywords: sensor, signal, uncertainty, gauge, length.

Abstract: The article deals with the design of a universal tester of length and position sensors. It is composed of a rotary table and a sliding mechanism for generating displacement. Length parallel gauges are used as standards. The result of the testing is the static and calibration characteristics of the sensor and the verification of the maximum permissible errors of the sensor and measuring chain.

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Possibilities of creating spur gear geometry

(pages 33-38)

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Keywords: gearbox, gearing, design, model.

Abstract: The swift advancement of science in computer technology enables the resolution of increasingly intricate engineering challenges through contemporary calculation techniques. Numerical methods employed in mathematics are among these. The finite element method, also known as FEM, is widely recognized as a prevalent numerical technique. The Finite Element Method (FEM) is a versatile technique employed to tackle diverse engineering challenges. These may include problems related to flexibility, strength, heat transfer, and a variety of gear solutions. The Finite Element Method is primarily employed in this domain to address deformation and stress analyses pertaining to the gears under examination. Numerous programs are available for addressing issues through the Finite Element Method. However, a crucial prerequisite for effectively analyzing deformation and stress in gearing is the precise definition of the computer model representing the gear system under investigation. The focus of the article is on discussing the process of designing gear geometry within CAD software systems.

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Educational procedures for training students in the field of pneumatic systems (pages 39-42)

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Keywords: pneumatic systems, educational procedures, methodology, laboratory equipment.

Abstract: The aim of this article is to present an educational model of the process of teaching students in subjects focused on the use of compressed air in automated industrial operations. The starting point is the existing commercially available training platform kit, the use of which provided the basis for developing the student training model described in the article. The article further discusses the training needs in all methods of controlling pneumatic circuits and focuses on the possibility of building an independent training workplace based on the electropneumatic base of the components used. The article describes several stages of the constantly improved educational platform, also with the contribution of student involvement in this activity. The conclusions of the article offer further guidance in the gradual completion of the educational model focused mainly on the practical training of graduates resulting in the ability to respond to market challenges after completing their university studies at our faculty.

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In-pipe robot with automatic wheel span adjustment (pages 43-48)

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Keywords: robot, wheeled, pipe, motion.

Abstract: The wheeled in-pipe robot with automatic adjustment of the wheel span according to the diameter of the pipeline is intended for movement in pipelines. This robot includes a mechanism for adapting the width of the wheels according to the inner diameter of the pipe. The developed motion module can be used multiple times and thus realize a robot with a larger number of modules to achieve greater traction force.