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MODAL AND BUCKLING ANALYSIS OF THE FIBERGLASS SAILPLANE FUSELAGE

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To reduce the testing time, in the aeronautical domain it is opting for finite element analysis to help the design engineer to have an overview of the structural behaviour (in static and dynamic regime) of the aircraft before flight tests. Thus, within this paper it was performed the static analysis of the fuselage of a fiberglass sailplane and the main equivalent stresses, the total deformation and the elastic strains were determined. Also it was performed a linear buckling analysis and determined the six modes of buckling and their corresponding deformations. Vibration behaviour (natural frequencies and mode shapes) and determining the time variation of the response at stresses were also determined by a modal analysis on the fuselage of the sailplane.

SELECTION OF NON-CONVENTIONAL MACHINING PROCESSES USING ANALITYC HIERARCHY PROCESS

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Contour cutting of sheets is a difficult and time consuming task, especially when the finished parts have a tight tolerances or an unusual shape. In those cases, may be selected non-conventional machining processes. Those processes can't apply for all types of material and thickness. Some processes are suitable for cutting all materials, but other for cutting metals or ferrous steels. Some processes are suitable for cutting wide range of sheet thickness, but other are suitable only for thin sheets. Each process has advantages and disadvantages. In this paper are selected some more applicable non-conventional machining processes for contour cutting sheets using Analytic Hierarchy Process (AHP).

STUDIU PRIVIND TRAGEREA COTURILOR DIN ŢEAVĂ PE DORN / STUDY CONCERNING THE PIPE BENDS TECHNOLOGICAL DRAWING OVER MANDREL

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The paper presents the bends manufacturing technology by pipes dragging on mandrel and the determination of mandrel geometry. It is considered the problem of pipes curving and the possibilities to solve the technological issues in the area.

STUDIUL PROCESELOR DE DEFORMARE ŞI CURGERE A MATERIALULUI LA TRAGEREA COTURILOR DIN ŢEAVĂ PE DORN / MATERIAL DEFORMATION AND FLOW PROCESSES STUDY FOR MANDREL DRAWING OF PIPE BENDS

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The paper presents aspects of metal processing by plastic deformation, the setting of heating temperature, analysis of structural changes and drawing speed in the mandrel drawing of pipe bends. There are presented conclusions concerning specific aspects of mandrel drawing for Ø89 x 6 mm bend at 90° from P235 GH and for Ø89 x 6 mm bend at 90° from X6CrNiTi l8 – 10.

EXPERIMENTAL STUDIES OF THE FRICTION PHENOMENON FOR STEEL ON OTHER MATERIALS FRICTION COUPLES AT LOW SLIDING VELOCITIES

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The paper presents an experimental study of the friction phenomenon at low sliding velocities conducted on a test bench provided by the GUNT company. It analyses the tribological behavior in dry conditions of different friction couples for which one of the materials is steel: steel – steel, steel – aluminium, steel – gray cast iron, steel – PVC, steel – teflon, steel – bronze and steel – polyamide. The evaluated parameter was the variation of the friction coefficient as a function of the normal force and the slip rate. Finally, after comparing the results, the best pair of materials in terms of friction was determined.