MATHEMATICAL MODELLING, SIMULATION AND EXPERIMENTAL VERIFICATION OF A PNEUMATIC SYSTEM

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ABSTRACT

In this article we have introduced the mathematical model of a typical pneumatic system, consisting of pneumatic cylinder, proportional electromagnetic valve, connecting tubes. Based on this mathematical model we have built in LabView a simulation program. We compared the results obtained from the simulation with the experimental measurements made in the experimental panel. The matching of the displacement and pressure characteristics in the cylinder chambers indicate the authenticity of the mathematical model which can be used for the constructive improvement of these components as well as for their PID control.

Keywords: Pneumatics, Simulation, Mathematical Model, Pneumatic Cylinder, LabView.