

# Modeling of the Temperature Control System of Injection Molding Machine

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*Abstract* — At present the development of industry of plastic products tends to grow up the quality and volume of products obtained by this method. The common denominator on quality, productivity and cost efficiency in producing plastic objects, it is thermal process that must ensure the material plastification in cylinder of plastification of machine. In this paper is elaborated a mathematical model describing the thermal process heating plasticizing cylinder for injection molding machine. Were simulated transient processes at start and in working regime of the machine with different types of regulators. For this simulation was necessary to develop structure of system in MatLab Simulink with conventional and fuzzy controllers. The comparative analysis of the results are resulting that the best performance for this system is ensures with a PID controller. The results of this study was used to modernization the control system with PLC with the power control of electrical heaters with Solid State Relay of plastic injection machine type DE 3330 F. To practical tests of the upgraded machine, has been demonstrated that digital temperature control for each thermal area ensure to the slow output to stationary regime, avoiding thermal shocks that lead to increase of the reboot and maintaining constant parameters and compensating disturbing factors.