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Set Point Tracking and Load Disturbance Rejection with PID and I-PD Controllers in Different Zones of Barrel Heating System

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Abstract : Most of the processes in process industries are non-linear and injection molding system is an example of such non-linear process. Maintaining proper barrel temperature is the key control action required for accurate shape and structure of the products. The mathematical model of each zone of the barrel can be used to analyze the characteristics of the plastic injection. Traditional Proportional Integral and Derivative (PID) and I-PD controllers are selected for analyzing performance of different zones of barrel heating system. The simulation results show that I-PD controllers outperform the conventional PID controller with improved set point tracking and load disturbance rejection.

Keywords : Barrel temperature, injection molding system, I-PD controller, mathematical model, PID controller, servo and regulatory control.

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