

Accurate and Repeatable Pressure Control for Critical Testing of Advanced Ceramics Using Proportional and Derivative Controller

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Abstract : The purpose of this paper is to discuss how to test the best control performance of a ceramics. Hydraulic press machine (HPM) is the most common shaping of advanced ceramic with products, dimensions, and ceramic products mainly from synthetic powders. A microcontroller can be achieved to control process and has set high standards in the shaping of raw materials in powder form. HPM was proposed to develop a position control system that linked to the embedded controller PIC16F877 via Proportional and Derivative (PD) controller. The model is performed using MATLAB/SIMULINK and the best control performance of an HPM. Finally, PD controller results, showing the best performance as it had the smallest overshoot and highest quality using a microcontroller control.

Keywords : ceramics, hydraulic press, microcontroller, PD controller

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