

Thesis Title	Defects Reduction in Plastic Injection Dynamo Part
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ABSTRACT

This paper originated from problems which occurred in a dynamo products produced in the factory in Thailand. The company transferred this production from a foreign country to the new factory in Thailand. In the beginning the numbers of rejected products were 3,160 pieces and the number of defective was 30 points. The purpose of this paper is finding the optimization parameters in plastic injection in dynamo part to reduce the blemishes and the defects of the product. The factorial experimental design was divided into 2 parts: the screening parameters by fractional factorial design and the refining optimum condition by full factorial design. The study included 6 factors: 1) inject power, 2) inject velocity, 3) inject time, 4) cooling time, 5) inject temperature, and 6) mold temperature which are the process of the production. The analysis was done by counting the defects on the products caused by 4 factors: weld mark, jetting, black steel, burning and warp then transform the data. From the results, it showed that significant factors affecting the defects of dynamo housing at the confidence level of 95% ($\alpha = 0.05$) were injection velocity, injection time and mold temperature. The optimum condition which provided fewer defects than another was injection velocity at 120 mm/sec, injection time at 8 sec and mold temperature at 60 degree Celsius. The result showed that the number of defective were reduced to 10 points (66.67%) and the number of rejected products were decreased to 2,068 pieces (34.50%). Anyhow some of the defective types such as burn area were still found, thus the plastic injection mold was modified. When the modified mold was used together with improved setting parameters according to optimum condition the number of defective dynamo housings were reduced to 2 points (93.99%) and the number of rejected products were decreased to 486 pieces (84.60%)