

Industrial Research Project Title	Manufacturing Process Improvement and Cost Reduction for the "DRIP SEAL" Extrusion Die using Alternative Material
Industrial Research Project Credits	6
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Abstract

This industrial project presents an alternative material used to produce a "DRIP SEAL" extrusion die and is aimed at improving the manufacturing process efficiency and reduce the overall cost of the extrusion die. The die is used to manufacture the rubber seal of the upper door for pick-up trucks in an automotive rubber part industry in Thailand. Currently the die is imported at high cost. The imported die is composed of upper and lower parts and is made out of S 45 C steel.

However, the imported die requires difficult set-up techniques and many extrusion tests in order to meet the product specifications. This is time consuming and results in high costs. Consequently, the study of a die produced in Thailand out of S400 steel is proposed. Computerized numerical control (CNC) is implemented to manufacture the upper and lower parts of the die.

The experiment reveals that a die made with S400 steel results in reduced set up times and lower total costs while maintaining the same quality of rubber seal as the imported die. The time to machine the die set and conduct the extrusion tests is reduced by 62.5 percent with the average time reduced from 24 hours to 9 hours. The number of extrusion tests is reduced by 66.66 percent with the number of test cycles reduced from 12 times to 4 times. The average

manufacturing costs of the die is reduce by 62 perccent and the cost of the extrusion testing is reduced by 280,000 baht per die set.

Keywords : Extrusion Die / Drip Seal / Alternative Material!