

Thesis Title	Testing of Modified Twist Drill in Order to Improve Tool Life and Reduce Energy Usage
Thesis Credits	12
Candidate	Mr.Chinavit Yamaphai
Supervisor	Assoc. Prof. Dr. Haris Sutaburt
Degree of Study	Master of Engineering
Department	Mechanical Engineering
Academic Year	1998

Abstract

This research “ Testing of Modified Twist Drill in Order to Improve Tool Life and Reduce Energy Usage “ is to test usage of ordinary twist drill and modified twist drill, double cone drill and thinned web drill , about tool life and suitability for three cutting objectives, minimum total cost, maximum production rate, and maximum profit rate. For each objective, we can specify cutting conditions which are cutting speed, feed rate. The testing materials is ferrous; low carbon steel and non ferrous; aluminium.

This research is composed of finding or relationship between tool life and cutting conditions, relationship between energy used for cutting and cutting conditions, and analysis of total cost, production rate and profit rate of cutting process in order to identify the requirement for the optimum cutting conditions.

The research shows that the tool life of the two modified twist drills are nearly the same increasing from the tool life of the ordinary twist drill and energy usage is reduced. For low alloy steel, thinned web drill is suitable for minimum total cost, ordinary

twist drill is suitable for maximum production rate, and both ordinary twist drill and thinned web drill are suitable for maximum profit rate.

Keywords : Twist Drill / Double Cone Drill / Thinned Web Drill / Cutting Condition /
Cutting Speed / Feed Rate