ABSTRACT

Surface roughness (Ra) is one of the specifications to determine the quality and precision of a component. Surface Roughness is a parameter that can determine the level of roughness of a surface. Thin-wall component is one component that has possibility of surface roughness. Thin wall component is one of the machining components that allows it to have a rough surface. Thin wall components tend to have a greater chance of having a rough surface. This is due to the lower hardness of the thin wall components. Hardness is one of the factors that can increase the possibility of a rougher surface. In general, thin-wall components consist of several pockets. In making a pocket, the corner is a critical part. At the corner, there is an increase in the contact angle between the cutting tool and the material. The angle of contact of the cutting tool with the material can cause a change in the cutting force which results in an increase in rough results. A rougher surface can decrease the strength of a component. To improve the surface quality at the corners of the thin wall component, optimization is needed. In this study, milling machine parameters were optimized using the Taguchi method and ANOVA. The material used in this study is aluminum alloy 6061. The factors used include feedrate (f), spindle speed (s), and depth of cut (d). The experiment was carried out based on the orthogonal array $L_9(3^3)$. *Measurement of the value of Ra is done using the stylus method. In this study, the optimal combination of parameters was obtained at a feedrate of 200 mm/min, a spindle speed of 1400 rpm, and a depth of cut of 0.5mm. The results of the ANOVA test explain that the depth of cut is the factor with the largest percentage contribution with smaller is better behavior.*

Keyword: *Surface roughness, Taguchi method, Thin wall component, corner milling,*