

ABSTRACT

THE EFFECT OF CUTTING SPEED, DEPTH OF CUT, AND FLUTE BLADE VARIATION TOWARD STAINLESS STEEL AISI 304 SURFACE ROUGHNESS TO MILLING PROCESS

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Milling or machine process using milling machine is one of the most milling machine used to make a certain component, in machine process using milling machine results a component that has different grade of surface roughness. The purpose of this research was to know the effect of cutting parameter toward surface roughness to machine process using milling machine at Stainless steel AISI 304 material using endmill flute made of carbide with 14mm diameter. Cutting parameter used in this research was cutting speed with 26.4 m/minute; 37.8 m/minute; 42.2 m/minute variation, depth of cut with 0.1 mm; 0.3 mm; 0.5 mm; and the amount of flute with 2 and 4 flute variations. From the results, the least surface roughness value was on the machine process using milling machine 4 flute with 42.2 m/minute cutting speed and 0.1 mm depth of cut with 3.160 μm surface roughness value, meanwhile the most surface roughness value was on the milling machine 4 flute with 26.4 m/minute cutting speed and 0,5mm depth of cut with 6.174 μm surface roughness value.

Key words: milling machine, surface roughness, cutting parameter, and Stainless Steel AISI 304