

ABSTRACT

The quality of a product on the metal cutting process seen from the surface roughness (surface roughness) is one of the critical quality characteristics (critical to quality characteristics / CTQ) which shows the quality of workmanship and product quality. One of the new technologies in the machining process to improve results in the metal cutting process required of non-conventional lathe tool holder with vibration technology which results from the metal cutting would be smoother in comparison with the usual toolholder used. UAT (Ultrasonic Vibration Assisted Turning) is a new technology that can muffle the sound, vibration on a lathe, can reduce the occurrence of cracks in the metal, the surface of the workpiece from a finer cutting results. To improve quality in metal cutting machining process in the investigator will make a UAT toolholder that can be used on conventional lathes. In this study, the method used FEA to simulate the design of toolholder UAT. The simulation results of static values obtained strength most 129 655 N / mm² (MPa) and the displacement 11.0189 micron and the analysis Taguchi to value ratio Signal to Noise (Larger is better) The popularity rank factors that influence such factors thickness flexure hinges on the level 3 (3.5mm), the distance flexure hinges on level 1 (1.5mm) and load (forces) at level 3 (1600N).

Keywords: *Tool Holder, Tool holder UAT, Ultrasonic Vibration Assisted Turning, Finite Element, Taguchi.*