

Parametric Analysis of the Ultimate Tensile Strength in Dry Machining of UNS A97075 Alloy

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ABSTRACT

Aluminium alloys (mainly 2XXX and 7XXX series) have been traditionally used in the industry in the manufacture of structural parts in aircrafts, due to their excellent ratio density-mechanical properties. Machining is commonly used in the manufacture of these parts. In addition, the actual trend is machining in dry, due to environmental and economic reasons. Under these conditions, surface integrity becomes one of the most important quality requirements applicable to machined parts. The micro and macro-geometrical properties analysis of the dry machined surface as a function of the cutting parameters is widely studied. Notwithstanding, there is a lack of research in the field dedicated to the physicochemical properties. In this paper the feed influence on the ultimate tensile strength for UNS A97075 (Al-Zn) alloy turned in dry is presented, as a first approximation to the study of the influence of the cutting parameters on this mechanical property.

Keywords: Aluminum Alloys; UNS A97075; Dry Machining; Ultimate Tensile Strength.