Abstract
Superalloy Inconel 617 has a wide application in the aerospace industry mainly for aircraft engine parts, because of its excellent high temperature properties, however due to its high hardness, it is difficult to machine. This article reports experimented work with two dry machining cutting tools, one coated by physical vapor deposition (PVD) and a cubic boron nitride (CBN) on a Computer Numerical Control (CNC) lathe. The behavior was studied for different cutting parameters: from 50 to 180 m / min, which was measured for the two-and three-dimensional roughness, hardness, temperature and metallographic analysis was made in order to obtain the optimum conditions permitting good surface integrity of machined parts, which can help improve the manufacture of parts in different applications. The results show that it is possible to machine dry 617 alloy can reach cutting speeds up to 160 or 170 m/min, resulting in an acceptable surface finish, after spending a "hotspot" unstable between 120 and 150 m / min.

Keywords
Nickel base superalloys, PVD, CBN, Critical Zone, HRSA.