

## **EXPERIMENTAL INVESTIGATION OF HOT MACHINING OF METALS BY USING OXY-ACETYLENE FLAME**

Syed Mujeeb<sup>1</sup> A.Naresh<sup>2</sup> M.Balamurali<sup>3</sup> C.Venkateshwar Reddy<sup>4</sup>

<sup>1,2,3</sup>Students Department of Mechanical Engineering, Matrusri Engineering College Saidabad, Hyderabad.

<sup>4</sup>Assistant Professor Department of Mechanical Engineering, Matrusri Engineering College Saidabad, Hyderabad.

The manufacturing of industrial components, under water applications like submarines and ships, chemical processing equipment and high temperature boilers with high mechanical properties requires the use of high performance materials. Manufacturers are focusing on high strength and high hardness materials with a moderate ductility to be processed by using conventional machining process with economics in machining. Conventional machining reduces the tool life, with increasing tool wear, surface finish and power consumption. High performance materials can be processed by hot machining. The metal part for hot machining has been raised to 800-900 degrees Celsius. In the present study three different materials of low, medium and high carbon steel (M.S., EN 19, EN 31) materials were selected for hot machining. The mechanical properties like tensile strength, shear strength, hardness and micro structure of three metals before and after hot machining has been studied. From the study it is found that, there is an increase in tensile properties, hardness and decrease in shear properties after hot machining.

Keywords Hot machining, oxy-acetylene flames, tool life, tensile strength, shear strength, hardness, crevice corrosion and digital infrared thermometer.