INVESTIGATION OF THE EFFECTS OF PLASMA CUTTING PARAMETERS ON THE ROUGHNESS VARIATION OF SOME MILD STEEL PLATES

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Abstract: The plasma process for cutting was developed approximately thirty years ago, for metals difficult to be cut by classic operations, and uses a high energy stream of dissociated, ionized gas, known as plasma, as the heat source. This paper presents some experimental results concerning the variation of the R_a roughness parameter depending on the thickness and properties of the workpiece material and cutting speed. The experimental tests were made in an industrial enterprise on a CNC plasma cutting equipment. Two types of mild steel sheet metal workpieces were cut using different cutting conditions, in order to establish an empiric model of the obtained surface roughness (R_a) and also to determine what parameter has the most influence on the R_a parameter.
Key words: Plasma cutting, working parameters, surface roughness.