## EMPIRICAL MODEL FOR CUT CHARACTERISTIC PREDICTION IN PULSED LASER CUTTING

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## Abstract

The cut characteristics obtained after laser cutting process depend to a greater extent on the magnitude of process variables, work piece material and the set up used. Also it is noted that the number of process variables involved in pulsed laser cutting are large. It is difficult to set all the process parameters every time, and hence to obtain a particular magnitude of defined cut characteristic the system setting becomes time consuming. In the present study attempts are made to develop empirical models to relate various process parameters like pulse width, pulse repetition rate, stand off distance, and speed for predicting the cut characteristics (Viz. top kerf width, bottom kerf width and material removal rate) for mild steel. These models help to set process parameter resulting into expected value of the cut characteristic. The experimental verification has shown good agreement with the model Prediction.

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**Keywords:** pulse width, pulse repetition rate, stand off distance, speed, top kerf width, bottom kerf width and material removal rate, empirical model.