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Influence of electrical Field on Pulsed Laser beam welding of Stainless Steel (304)

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Abstract: Pulsed laser beam welding experiment were carried out on stainless steel (SUS 304), using vertical and horizontal electric fields of different intensities to study its effectiveness on the welding process, regarding depth and weld quality. Pulsed Nd: YAG laser emitting 10 ms pulses in the TEM₀₀ mode at 1.06 μ m wave length was employed, microstructure of welded zone and defect were investigated using optical and scanning electron microscopes. Tensile test and microhardness measurements were carried out to evaluate the weld quality. Welding by this method increased the efficiency tremendously and a depth increase of 85% was achieved.

 [Keywords](#)
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