



# The Effect of Thermal and Mechanical Properties of the Metals on the Laser Tube Bending Process

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### Abstract:

The laser tube bending process is affected by many factors including the metal properties which consider as a crucial parameter. Moreover, the absorption and diffusion of the laser energy inside the metal bulk depend on the thermal and mechanical properties of the material. Numerous studies have been conducted to evaluate each parameter of the material properties factor. In this paper, an analytical examination has been employed to study the impact of different material specifications by using the Matlab package. The thermal expansion coefficient is directly proportional to the bending angle while the specific heat and the density are inversely proportional to the bending angle. furthermore, Aluminium had the highest bending angle in most tested conditions, the Stainless Steel 304 came next.

### **Biography:**

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Webinar on Artificial Intelligence and its applications | October 18, 2020 | London, UK

**Citation:** Khalil Ibraheem Imhan , The Effect of Thermal and Mechanical Properties of the Metals on the Laser Tube Bending Process; Artificial Intelligence 2020; October 18, 2020; London, UK.