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An Overview Study on Laser Technology and Conventional Technology's Effect on Wood and Sheet Metal Manufacturing for The Furniture Industry

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Abstract:

The laser was one of the most important inventions of the twentieth century, improving many aspects of daily life. Because of its clean cutting-edge capabilities, delicate welding lines, potent etching strokes, high power operation, and precise distance measurement capabilities, laser technology has gradually taken over and dominated the mechanical market, particularly in the field of material handling and metal parts for the furniture industry. By creating intricate and continuous features, lines, shapes, and patterns in metal using lasers, the wood, and sheet metal furniture industries are given new opportunities. However, it is still confusing for designers and manufacturers which is the best method to produce their designs. Hence, there is a need to compare the conventional technology of traded furniture production with laser technology. In order to support the industry in a way that serves to save time and effort and enhances sustainability. We demonstrate that using laser cutting and engraving devices in intricate and sophisticated processing is an amazing technology on flat sheet materials. In conclusion, the laser is more flexible in conjugation with a high degree of accuracy, and the quality of the cutting kerf all add up to make the use of this tool particularly interesting for machining. The focused beam of a modern CO2 laser cuts wood and metal sheets quickly, and accurately and requires no contact or clamping. There is no tool wear and the laser is more or less maintenance-free. Otherwise, using a CNC router is preferred when cutting, or engraving in case of thick wood or metals sheet.

Keywords:

Wood and sheet metal industries, laser cutting, laser welding, CO2 laser beam, furniture design, CNC machining

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