

## OP 128

### Exploring Electron Beam Welding Techniques for Structural Steel: Characterization and Mechanical Evaluation

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This study investigates Electron Beam Welding (EBW) processes, both with and without material deposition. Specifically, structural steel (S355MLO) with a thickness of 90mm was welded in a single pass. Metallographic characterizations and mechanical tests were conducted to evaluate the welds' properties. The results demonstrate successful welding, with sound welds achieved. This research provides valuable insights into the efficacy of the EBW technique and its application in welding structural steel components. The ability to perform welds in a single pass suggests high potential for this technique in industrial applications requiring high-quality welds in thick materials. This study highlights the importance of electron beam welding as a reliable and effective technique in the fabrication of critical steel structures.