

## 铝合金火箭贮箱壁板结构双激光束双侧同步焊接技术研究

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激光焊接技术对实现铝合金框桁式火箭贮箱壁板结构的轻量化与高效率制造具有重要意义<sup>[1]</sup>。本文针对 2219 铝合金蒙皮-桁条 T 型结构开展双激光束双侧同步焊接技术研究, 采用工艺实验与数值模拟相结合的方法, 实现了激光焊接工艺参数优化及框桁式火箭贮箱壁板结构激光焊接变形控制<sup>[2-7]</sup>。此外, 针对 2195 铝锂合金光纤-半导体激光复合焊接技术开展探索性研究, 研究发现, 半导体激光热源的同轴叠加可稳定激光焊接熔池, 改善焊接表面成形质量, 同时有效抑制焊接气孔缺陷<sup>[8,9]</sup>。

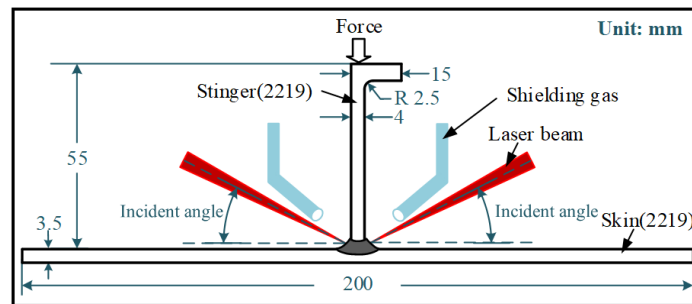


Fig. 1 The schematic diagram of dual laser-beam bilateral synchronous welding.

**关键词:** 2219铝合金, 2195铝锂合金, 火箭贮箱, 双激光束双侧同步焊接, 光纤-半导体激光复合焊接

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