

대출력 화이버 레이저 용접에서 보호가스의 영향에 관한 연구

The Effect of Shielding Gas on Deep Penetration High Power Fiber Laser Welding

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ABSTRACT

Pipe line was the most effective way for transportation of the resources such as oil, gas, water. Cost and performance of the pipe line was depends mainly on welding process. High power fiber laser has deep penetration welding capability with high productivity as well as mobile welding performance by compact design and high wall plug efficiency.

In this study, the effect of shielding conditions on deep penetration welding with high power fiber laser. The material was SS400 grade steel of 12mm thickness. The behaviors of laser induced metal vapor plasma were investigated with spectroscopy and high speed photography on 10kW fiber laser welding. Soundness and bead shape evaluated by cross sectional microstructure test of welding bead.

For the results, the width of bead surface which affected by thermal radiation of metal vapor plasma, was varied by shielding conditions.