

The Effect of Argon Shielding Gas Flow Rate on Welded 22MnBS Boron Steel Using Low Power Fiber Laser

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Abstract:

This study deals with an investigation of shielding gas flow rate on continuous wave (CW) and pulse wave (PW) mode of welded boron steel (22MnB5) using low power fiber laser. Argon gas is selected as shielding gas. The observation of welding surface, geometry, microstructure and hardness distribution were carried out with different shielding gas flow rate from 5 to 25 L/min. The result found 15 L/min is the optimum argon shielding gas flow rate to produce good weld surface and deeper penetration which is apparent in PW mode application. The microstructure and mechanical properties are not affected by shielding gas flow rate. It is majorly influenced by thermal experience during particular welding process.

Keywords: Welding; Laser processing; Boron Steel; Light weight