

A Study on Temperature and Drawing Speed for Diffusion Bonding Enhancement in Drawing of Hot Lined Pipes by FEM Analysis

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Abstract : Diffusion bonding has been continuously studied. Temperature and pressure are the most important factors to increase the strength between diffusion bonded interfaces. Diffusion bonding is an important factor affecting the bonding strength of the lined pipe. The increase of the diffusion bonding force results in a high formability clad pipe. However, in the case of drawing, it is difficult to obtain a high pressure between materials due to a relatively small reduction in cross-section, and it is difficult to prevent elongation or to tear of material in hot drawing even if the reduction in the section is increased. In this paper, to increase the diffusion bonding force, we derive optimal temperature and pressure to suppress material stretching and realize precise thickness precision.

Keywords : diffusion bonding, temperature, pressure, drawing speed

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