

A Study on the Relationship between Shear Strength and Surface Roughness of Lined Pipes by Cold Drawing

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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 heat drawing even if the reduction in 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 : drawing speed, FEM (Finite Element Method), diffusion bonding, temperature, heat drawing, lined pipe

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