

## Optimal Design of Shape for Increasing the Bonding Pressure Drawing of Hot Clad Pipes by Finite Element Method Analysis

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**Abstract :** Clad Pipe is made of a different kind of material, which is different from the internal and external materials, for the corrosive crude oil transportation tube. Most of the clad pipes are produced by hot rolling. However, problems arise due to high product prices and excessive process numbers. Therefore, in this study, the hot drawing process with excellent product cost, process number and productivity is applied. Due to the nature of the drawing process, the shape of the mold greatly influences the formability of the material and the bonding pressure of the two materials because it is a process of drawing the material to the die and reducing the cross-sectional area. Also, in case of hot drawing, if the mold shape is not suitable due to the increased fluidity of the material, it may cause problems such as tearing and stretching. Therefore, in this study, we try to find the shape of the mold which suppresses the occurrence of defects in the hot drawing process and maximizes the bonding pressure between the two materials through the mold shape optimization design by FEM analysis.

**Keywords :** clad pipe, hot drawing, bonding pressure, mold shape

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