

Title :

Investigation of adding Stellite 1 to Inconel 625 in hardfaced H13 hot work tool steel by tungsten-gas arc welding

Abstract :

The price of the mold is the most important component of reducing the cost of production, which is associated with the life of the mold and is determined by the amount of production. Many industries use a superficial process to repair and extend the life of the hot forging molds. In this case, the base alloys of cobalt and nickel are the top priority. In this research, the possibility of the hardening of the Hot work tool steel H13 by the combination of Stellite1 and Inconel625 with the process of arc welding of tungsten-gas has been investigated. As the optimal combination of wear resistance and toughness can be achieved from the two Inconel625 and Stellite1 alloys, in addition to reducing costs, the life of forging molds can be increased. Adding Stellite1 to the Inconel625 in a hard surface coating increases the hardness and toughness and resistance to cracking the steel cover of the hot work tool.

Keywords :

Gas tungsten arc welding Stellite1, Inconel625, Hot work tool steel H13, Surface Coating, Wear Resistance