

INFLUENCE OF WARM FORGING ON MECHANICAL AND MICRO STRUCTURAL PROPERTIES OF 316L STEEL

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ABSTRACT

The warm deformed microstructure of 316L ASS has been investigated through the usage of EBSD-SEM. An attempt has been made to recognize the impact of deformation and heat treatment on the mechanical and micro structural properties of 316L stainless steel. From micrograph it discovered that grain refinement occurs after warm forging of sample, refinement of microstructure takes place because revision occurs from alpha ferrite and martensite into austenite that's shaped after warm deformation. Solution annealed sample after warm forging offers higher mechanical energy due to conversion of homogenised and equiaxed grains of austenite. From experimental result it observed that hardness increases after growing the percentage of forging however impact energy decreases after growing the percentage of forging. The size of grain reduced after deformation but homogeneous distribution of grains were obtained after solution annealing of 50 percent deformed sample. Solution annealing after 50 percent deformation gives optimum impact strength and hardness therefor from experimental results we conclude that solution annealing after deformation produces homogeneous microstructure which gives optimum strength after deformation.

