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Effect of butt joint distortion on Ti/Al dissimilar metal using Laser beam welding

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Description In general, it is desirable to finish the weld quickly, before a large volume of surrounding metal heats up and expands. The welding process used, type, welding current and speed of travel, thus, affect the degree of shrinkage and distortion of a weldment. The use of mechanized welding equipment reduces welding time, metal affected zone and consequently distortion. This article helps to define what weld distortion is and then provide a practical understanding of the causes of distortion, effects of shrinkage in butt joint welded assemblies using Titanium Grade5 and Aluminium AA2024 alloy sheet. The beam offset position to the joint interface towards titanium and aluminium side. The factors affecting distortion during welding is also given. Test results reveal that welding speed is the significant parameter to decide the extent of distortion. Also welding from Al side reduces the distortion while Ti side increases the distortion.

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