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Weld speed effects on quality of Ti/Al dissimilar metal joints using laser beam welding

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Description	Laser beam welding produces good quality welds with minimum shrinkage for sheet metal joints. The quality of welded joint depends upon surface morphology, hardness, mixing of liquid phases and metallurgical non-homogeneity induced by gradients of temperatures and cooling rate at the weld interface. In the present investigation, Titanium Grade5 (Ti) and AA2024 (Al) alloy dissimilar sheet metals are joined using Nd:YAG pulsed laser beam and the effect of welding speed on crack tendencies, the strength of weldment based on hardness and composition changes are studied. Test results reveal that higher welding speed eliminates cracks in weldment and improves surface morphology. From hardness test, it is observed that the strength of fusion zone is considerably improved at higher weld speed and the findings are supported by SEM and EDS studies.
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