

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
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APPLICATION OF FRICTION STIR WELDING IN THE FIELD OF LAUNCH VEHICLE TANK
MANUFACTURING

Abstract

Compared to conventional fusion welding, Friction stir welding(FSW) has been widely used to join aerospace structures due to its notable advantages involving free defect, low deformation, high joint quality, and so on. Based on the characteristics of aerospace products, the current status of understanding and development of FSW has been addressed in the field of aerospace manufacturing, and the technique system of FSW has been established. In this paper it summarized the characteristics of FSW process, the effect of factor on the joint quality, the definition and classification of FSW defects, and NDE of FSW weld. Recently FSW technology has been successfully applied in the joining of longitudinal barrel and dome of launch vehicle tank. As many research indicated that, FSW technology can be considered to be the most significant development in the launch vehicle tank. The application of new solid-state joining techniques such as FSW will be the most important measurement in notably improving the manufacturing level of launch vehicle tank.