

Investigation of Friction-Striving Welded Joints of Comparable Aluminum Alloys

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Abstract: *The purpose of this project is to use friction stir welding (FSW) to fuse two identical aluminum alloys together and investigate the properties of the welded joints. Aluminum alloys are best welded by friction welding, a solid state joining technique. We can strengthen the welded region by adjusting the FSW parameters, such as tool feed, tool rotation speed, and tool design. The main benefits of friction welding are its solid state nature, low distortion, lack of melt-related flaws, and good joint strength—even for alloys that traditional welding methods deem unworkable. Additionally, because the process doesn't require filler, friction welded joints are free of filler-induced issues or faults. They also have low hydrogen contents, which is a crucial factor for welding steel and other alloys that are vulnerable to hydrogen damage. In this case, the feed, profile, and load are all held constant, but the tool's rotating speed is considered the variable parameter. To determine the efficiency of the weld, mechanical characterisation tests such as tensile, impact, and hardness tests would be performed on the specimens*

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