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The improvement of the bonding of Friction Stir Welding (FSW) of high strength aluminum alloy (extra super duralumin 7075) was investigated. We carried out FSW for the two different states of precipitate of specimen using a ceramic tool. As a result, the treated materials 473K with coarse precipitates was observed to have the internal defects such as flow and voids. However, the treated material 573K with dispersed fine precipitates was observed not to have internal defects. It was found that the bonding property of the high strength aluminum alloy was improved by the microstructural control to finely dispersed nano precipitates, and by using a ceramic tool so that heat may be stored during the FSW.