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W.F. Xu, Y.X. Luo, M.W. Fu



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of thick rolled 7085-T7452 aluminum alloy

W.F. Xu^{*1,2}, Y.X. Luo¹, M.W. Fu²

¹State Key Laboratory of Solidification Processing, Shaanxi Key Laboratory of Friction

Welding Technologies, Northwestern Polytechnical University, Xi'an 710072, Shaanxi, China

²Department of Mechanical Engineering, The Hong Kong Polytechnic University, Hung Hom,
Kowloon, Hong Kong, China

*Corresponding author: W.F. Xu

Tel./Fax: +86-29-88492624

E-mail: xwf1982@nwpu.edu.cn

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Abstract: The microstructure evolution during the conventional single side friction stir welding (SS-FSW) and the bobbin tool FSW (BB-FSW) of 7085-T7452 alloy thick plate was extensively studied by using the state-of-the-art materials characterization techniques. The Electron backscattering diffraction results reveal that a significant grain refinement and a larger percentage of high angle grain boundaries (HAGBs) exist in the weld nugget zone (WNZ) and the thermal-mechanical affected zone (TMAZ) compared with the base material. Meanwhile, more obviously inhomogeneous refined grains and HAGBs in WNZ along the thickness direction and a larger percentage of low angle grain boundaries (LAGBs) were observed in SS-FSW joint than that in BB-FSW joint. The change of the average grain size is

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