

**DAFTAR PUSTAKA**

- Aluminium Association (2015). International Alloy Designations and Chemical Composition Limits for Wrought Aluminum and Wrought Aluminum Alloys. The Aluminum Association, Inc. 1525 Wilson Boulevard, Arlington, VA 22209.  
[www.aluminum.org](http://www.aluminum.org)
- Aa-h, H., Kumar, P., Narayanan, R. G., & Kailas, S. V. (2018). Effect of rotational speed on friction stir spot welding of AA5052-H32 / . *Journal of Materials Processing Tech.*, 252(August 2017), 511–523.  
<https://doi.org/10.1016/j.jmatprotec.2017.10.016>
- Abbass, M. K. (2012). Effect of Aging Time on the Mechanical Properties of Friction Stir Spot Welding of Al-alloy ( AA2024 ). *International Journal of Engineering Research and Application*, 2(3), 1366–1374.
- Alheta, S., Zayan, S., Mahmoud, T., & Gomaa, A. (2016). Optimization of Friction Stir Spot Welding Process Parameters for AA6061-T4 Aluminium Alloy Plates. American Scientific Research Journal for Engineering, Technology, and Sciences (ASRJETS) Volume 20, No, 244–253.
- Alipooramirabad, H., Paradowska, A., Ghomashchi, R., Kotousov, A., & Reid, M. (2015). Quantification of residual stresses in multi-pass welds using neutron diffraction. *Journal of Materials Processing Technology*, Volume 226, 40–49.
- AlShaibani, J.I., & K. Aljanabi, M. (2020). Characteristics of Hook and Intermixing Layer of Friction Stir Spot Welding Aa5052/C10100 Joints Reinforced By Zno Nano-Particles. *Kufa Journal of Engineering*, 11(03), 1–15.  
<https://doi.org/10.30572/2018/kje/110301>
- Anikivi, A., & Kulkarni, V. (2016). Experimental Study of Process Parameters and Effect of Tool Design on Prodties of Friction Stir Spot Welds. *International Journal of Engineering Research and General Science* Volume 4, Issue 2, 266–276.
- Babu, S., Sankar, V. S., Ram, G. D. J., Venkitakrishnan, P. V., Reddy, G. M., & Rao, K. P. (2013). Microstructures and Mechanical Properties of Friction Stir Spot Welded Aluminum Alloy AA201. *Journal of Materials Engineering and Performance*, Volume 22, 71–84.
- Badarinarayan, H., Yang, Q., & Zhu, S. (2009). Effect of tool geometry on static strength of friction stir spot-welded aluminum alloy. *International Journal of Machine Tools & Manufacture*, Volume 49, 142–148.
- Baek, S., Choi, D., Lee, C., Ahn, B., Yeon, Y., Song, K., & Jung, S. (2010). Microstructure and Mechanical Properties of Friction Stir Spot Welded Galvanized Steel. *Materials Transactions*, Volume 51(5), 1044–1050.
- Bakavos, D., Chen, Y., Babout, L., & Prangnell, P. (2010). Material Interactions in a Novel Pinless Tool Approach to Friction Stir Spot Welding Thin Aluminum Sheet. *Metallurgical and Materials Transactions A*, Volume 42A, 1266-1282.
- Bozzi, S., Helbert-Etter, A. L., Baudin, T., Klosek, V., Kerbiguet, J. G., & Criqui, B. (2010). Influence of FSSW parameters on fracture mechanisms of 5182



- Bohler (2013). H13 Tool steel. [www.bucorp.com](http://www.bucorp.com) | 1-800-638-2520 | [info@bucorp.com](mailto:info@bucorp.com)
- Buffa, G., Fanelli, P., Fratini, L., & Vivio, F. (2014). Influence of joint geometry on micro and macro mechanical properties of friction stir spot welded joints. *Procedia Engineering*, 81(October), 2086–2091. <https://doi.org/10.1016/j.proeng.2014.10>
- Chang, W. S., Cho, H. J., Kim, H. J., & Chun, C. K. (2007). Evaluation of Friction Spot Joining Weldability of Al Alloys for Automotive. *Materials Science Forum*, Vols. 539–543, 411–416.
- Chen, K., Liu, X., & Ni, J. (2017). Effects of Process Parameters on Friction Stir Spot Welding of Aluminum Alloy to Advanced High-Strength Steel. *Journal of Manufacturing Science and Engineering*, Volume 139(8), 81016-1-9.
- Chen, Y.C., Gholinia, A., & Prangnell, P. B. (2012). Interface structure and bonding in abrasion circle friction stir spot welding : A novel approach for rapid welding aluminium alloy to steel automotive sheet. *Materials Chemistry and Physics*, Volume 134(1), 459–463.
- Chowdhury, S.H., Chenan D.L., Bholea, S.D., Caob, X., Wanjara, P. (2013). Lap shear strength and fatigue behavior of friction stir spot welded dissimilar magnesium to aluminum joints with adhesive. *Materials Science & Engineering A*, Volume 562, 53–60.
- Clapham, L., Abdullah, K., Jeswiet, J. J., Wild, P. M., & Rogge, R. (2004). Neutron diffraction residual stress mapping in same gauge and differential gauge tailor-welded blanks. *Journal of Materials Processing Technology*, Volume 148, 177–185.
- Cox, C.D., Gibson, B.T., Strauss, A.M., & Cook, G.E. (2014). Energy input during friction stir spot welding. *Journal of Manufacturing Processes*, Volume 16(4), 479–484.
- Davis J.R. (2001). Aluminum and Aluminum Alloys. ASM International p351-416.
- Deepak, C. P., Venkateswarlu,K., Kori, S.A., Goutam, D., Mousumi, D., Alhajeri, S.N., and Langdon, T.G. (2014). Mechanical property evaluation of an Al-2024 alloy subjected to HPT processing. *Materials Science and Engineering*, Volume 63, 012085\_1-9.
- Demir, H., & Gündüz, S. (2009). The effects of aging on machinability of 6061 aluminium alloy. *Materials and Design*, 30(5), 1480–1483.  
<https://doi.org/10.1016/j.matdes.2008.08.007>
- Dieter, G.E., (1988). *Mechanical Metallurgy SI Metric Edition*. Material Science and Engineering. McGraw- Hill Book Company(UK)Limited.
- Dong, H., Chen, S., Song, Y., Guo, X., Zhang, X., & Sun, Z. (2016). Refilled friction stir spot welding of aluminum alloy to galvanized steel sheets. *Materials & Design*, Volume 94, 457–466.
- D'Urso, G. (2015). Thermo-mechanical characterization of friction stir spot welded AA6060 sheets: Experimental and FEM analysis. *Journal of Manufacturing Processes*, Volume 17, 108–119.



Farmanbar, N., Mousavizade, S. M., & Ezatpour, H. R. (2019). Achieving special mechanical properties with considering dwell time of AA5052 sheets welded by a simple novel friction stir spot welding. *Marine Structures*, 65(January), 197–214.  
<https://doi.org/10.1016/j.marstruc.2019.01.010>

Garg, A., & Bhattacharya, A. (2017). Strength and failure analysis of similar and dissimilar friction stir spot welds: Influence of different tools and pin geometries. *Materials and Design*, Volume 127, 272–286.

Gerlich, A., Yamamoto, M., & North, T. H. (2007). Strain rates and grain growth in Al 5754 and Al 6061 friction stir spot welds. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, 38(6), 1291–1302.  
<https://doi.org/10.1007/s11661-007-9155-0>

Gerlich, A., Yamamoto, M., & North, T. H. (2007). Local melting and cracking in Al 7075-T6 and Al 2024-T3 friction stir spot welds. *Science and Technology of Welding and Joining*, 12(6), 472–480. <https://doi.org/10.1179/174329307X213873>

Gerlich, A., Su, P., Yamamoto, T., & North, T. H. (2008) Material flow and intermixing during dissimilar friction stir welding. *Journal Science and Technology of Welding and Joining* Volume 13, Issue 3, 254–264.

Gerlich, A. P., & Shibayanagi, T. (2009). Grain boundary sliding during friction stir spot welding of an aluminum alloy. *Scripta Materialia*, 60(4), 42–45.  
<https://doi.org/10.1016/j.scriptamat.2008.10.006>

Gerlich, A. P., & Shibayanagi, T. (2009). Grain boundary sliding during friction stir spot welding of an aluminum alloy. *Scripta Materialia*, 60(4), 42–45.  
<https://doi.org/10.1016/j.scriptamat.2008.10.006>

Goushegir, S. M. (2016). Friction spot joining ( FSpJ ) of aluminum-CFRP hybrid structures. *Welding in the World*, 60:1073–1093.

Habba, M., Ahmed, M., Seleman, M., & EL-Nikhaily, A. (2018). An Analytical Model of Heat Generation for Friction Stir Welding Using Bobbin Tool Design. *Journal of Petroleum and Mining Engineering*, 20(1), 1–5.  
<https://doi.org/10.21608/jpme.2019.37963>

Han, L., Blundell, N., Lu, Z., Shergold, M., Rover, L., Engineering, G., & Chrysanthou, A. (2007). Fatigue behaviour of friction stir joined aluminium alloy NG5754 and AA6111 sheets. Warwick Manufacturing Group, University of Warwick.

Helmut Föll. “The Aluminum (Al) - Copper (Cu) System”. Diakses pada Juni 10, 2021.  
[https://www.tf.uni-kiel.de/matlis/amat/iss/kap\\_8/advanced/a8\\_2\\_2.html](https://www.tf.uni-kiel.de/matlis/amat/iss/kap_8/advanced/a8_2_2.html)

Howeyze, M., Arabi, H., Eivani, A.R., , and Jafarian, H.R. (2018). Strengthening of AA5052 aluminum alloy by equal channel angular pressing followed by softening



Hu, Z. L., Wang, X. S., & Yuan, S. J. (2012). *Quantitative investigation of the tensile plastic deformation characteristic and microstructure for friction stir welded 2024 aluminum alloy*. 73. <https://doi.org/10.1016/j.matchar.2012.08.007>

Huang, K., Chang, S., & Lui, T. (2015). Influence of Pre-Deformation of 5052H112 Alloy on Tensile Properties and Fracture Resistance under Vibration. *Materials Transactions*, Volume 56, No. 2, pages 236–241.

Ibrahim, H. K., Khuder, A. W. H., & Muhammed, M. A. S. (2019). Effect of tool-pin geometry on microstructure and temperature distribution in friction stir spot welds of similar AA2024-T3 aluminum alloys. *International Journal of Mechanical and Mechatronics Engineering*, 19(1), 14–28.

Ilangovan, Boopathy, Balasubramanian (2015) Effect of tool pin profile on microstructure and tensile properties of friction stir welded dissimilar AA 6061-AA 5086 aluminium alloy joints. *Defence Technol* 11(2): 174-184.

Ipekoglu, G., Erim, S., & Cam, G. (2014). Investigation into the influence of post-weld heat treatment on the friction stir welded AA6061 Al-Alloy plates with different temper conditions. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, 45(2), 864–877.  
<https://doi.org/10.1007/s11661-013-2026-y>

Jabbar, I., & Guven, G. (2018). Application of a novel friction stir spot welding process on dissimilar aluminum joints. *Journal of Manufacturing Processes*, 35(August), 282–288. <https://doi.org/10.1016/j.jmapro.2018.08.018>

Ji, S., Wang, Y., Zhang, J., & Li, Z. (2017). Influence of rotating speed on microstructure and peel strength of friction spot welded 2024-T4 aluminum alloy. *The International Journal of Advanced Manufacturing Technology*, 90(1–4), 717–723. <https://doi.org/10.1007/s00170-016-9398-2>

Jedrasiak, P., Shercliff, H. R., Reilly, A., McShane, G. J., Chen, Y. C., Wang, L., Prangnell, P. (2016). Thermal Modeling of Al-Al and Al-Steel Friction Stir Spot Welding. *Journal of Materials Engineering and Performance*, 25(9), 4089–4098.

Kang, M., Yoon, J., & Kim, C. (2020). Hook formation and joint strength in friction stir spot welding of Al alloy and Al–Si-coated hot-press forming steel. *International Journal of Advanced Manufacturing Technology*, 106(5–6), 1671–1681.  
<https://doi.org/10.1007/s00170-019-04716-9>

Karthikeyan, R., & Balasubramanian, V. (2010). Predictions of the optimized friction stir spot welding process parameters for joining AA2024 aluminum alloy using RSM. *Int J Adv Manuf Technol*, 51:173–183 173–183.

Khethier, M., Sabah, A., Hussein, K., & Adnan, A. (2016). Optimization of Mechanical Properties of Friction Stir Spot Welded Joints for Dissimilar Aluminum Alloys (AA2024-T3 and AA 5754-H114). *Arab J Sci Eng*, 41: 4563–4572.

Khandkar M.Z.H., Khan, J.A., Reynolds, A.P. (2003). Prediction of temperature distribution and thermal history during friction stir welding: input torque model. *Science and Technology of Welding and Joining*, Volume 8(3), 165–174



Kim, D., Badarinarayan, H., Ryu, I., Kim, J. H., Kim, C., Okamoto, K., Chung, K.

(2010). Numerical simulation of friction stir spot welding process for aluminum alloys. *Metals and Materials International*, Volume 16(2), 323–332.

Kim, J., Ahn, E., Das, H., Jeong, Y., Hong, S., Miles, M., & Lee, K. (2017). Effect of Tool Geometry and Process Parameters on Mechanical Properties of Friction Stir Spot Welded Dissimilar Aluminum Alloys. *International Journal of Precision Engineering and Manufacturing*, Volume 18(3), 445–452.

Klobcar, D., Tu, J., Smolej, A., & Simon, S. (2015). Parametric study of FSSW of aluminium alloy 5754 using a pinless tool. *Weld Word*, 59:269–281.

Ko, Y. G., Masood Chaudry, U., & Hamad, K. (2020). Microstructure and mechanical properties of AA6061 alloy deformed by differential speed rolling. *Materials Letters*, 259, 126870. <https://doi.org/10.1016/j.matlet.2019.126870>

Kulekci, M. K. (2014). Effects of Process Parameters on Tensile Shear Strength of Friction Stir Spot Welded Aluminium Alloy (EN AW 5005). *Archives of Metallurgy and Materials*, Volume 59(1), 4–7.

Kumar, A., Arora, K. S., Gupta, R. K., & Harmain, G. A. (2019). Investigation on interface morphology and joint configuration of dissimilar sheet thickness FSSW of marine grade Al alloy. *Journal of the Brazilian Society of Mechanical Sciences and Engineering*, 41(9), 1–13. <https://doi.org/10.1007/s40430-019-1882-9>

Lakshminarayanan, A. K., Annamalai, V. E., & Elangovan, K. (2015). Identification of optimum friction stir spot welding process parameters controlling the properties of low carbon automotive steel joints. *Journal of Materials Research and Technology*, Volume 4(3), 262–272.

Lim, Y. K., & Thamizhmanii, S. (2015). Microstructure and Mechanical Properties of Dissimilar Aluminium Alloy / Stainless Steel Joints Prepared by Friction Stir Spot Welding. *IJIMM*, Volume 2(1), 226–232.

Li, W., Li, J., Zhang, Z., Gao, D., Wang, W., & Dong, C. (2014). Improving mechanical properties of pinless friction stir spot welded joints by eliminating hook defect. *Materials and Design*, 62, 247–254. <https://doi.org/10.1016/j.matdes.2014.05.028>

Li, G., Zhou, L., Zhou, W., Song, X., & Huang, Y. (2019). Influence of dwell time on microstructure evolution and mechanical properties of dissimilar friction stir spot welded aluminum – copper metals. *Integrative Medicine Research*, 8(3), 2613–2624. <https://doi.org/10.1016/j.jmrt.2019.02.015>

Li, Z., Ji, S., Ma, Y., Chai, P., Yue, Y., & Gao, S. (2016). Fracture mechanism of refill friction stir spot-welded 2024-T4 aluminum alloy. *The International Journal of Advanced Manufacturing Technology*, 1925–1932. <https://doi.org/10.1007/s00170-015-8276-7>

Lin, Y., & Chen, J. (2015). *Influence of process parameters on friction stir spot welded aluminum joints by various threaded tools*. *Journal of Materials Processing Technology*, 225, 347–356. <https://doi.org/10.1016/j.jmatprotec.2015.06.024>



Liu, Y., Zhu, B., Wang, Y., Li, S., & Zhang, Y. (2020). Fast solution heat treatment of high strength aluminum alloy sheets in radiant heating furnace during hot stamping. *International Journal of Lightweight Materials and Manufacture*, 3(1), 20–25. <https://doi.org/10.1016/j.ijlmm.2019.11.004>

Mahmoud, T. S., & Khalifa, T. A. (2014). Microstructural and mechanical characteristics of aluminum alloy AA5754 friction stir spot welds. *Journal of Materials Engineering and Performance*, Volume 23(3), 898–905.

Malafaia, A. M. Sa, Milan, M.T.b, Oliveira, M. F.a, Spinelli, D.a. (2010). Fatigue behavior of friction stir spot welding and riveted joints in an Al alloy. *Procedia Engineering*, Volume 2(1), 1815–1821.

Manickam, S., & Balasubramanian, V. (2016). Optimizing the Friction Stir Spot Welding Parameters to Attain Maximum Strength in Al / Mg Dissimilar Joints, *Journal of Welding and Joining*, Volume 34(3), 23–30.

Manickam, S., Rajendran, C., & Balasubramanian, V. (2020). Investigation of FSSW parameters on shear fracture load of AA6061 and copper alloy joints. *Heliyon*, 6(6), e04077. <https://doi.org/10.1016/j.heliyon.2020.e04077>

Mathers, Gene, The welding of aluminium and its alloys, First published, Woodhead Publishing Ltd and CRC Press LLC, (2002).

Meyghani, B., & Wu, C. (2020). Progress in Thermomechanical Analysis of Friction Stir Welding. *Chinese Journal of Mechanical Engineering (English Edition)*, 33(1). <https://doi.org/10.1186/s10033-020-0434-7>

Mijajlovic, M., Milcic, D. (2012). Analytical Model for Estimating the Amount of Heat Generated During Friction Stir Welding: Application of plates Made of Aluminium Alloy 2024 T351. InTech, *Welding Processes*, 247-274

Miles, M., Karki, U., & Hovanski, Y. (2014). Temperature and Material Flow Prediction in Friction-Stir Spot Welding of Advanced High-Strength Steel. *JOM*, Volume 66(10), 2130–2136.

Ojo, O. O., Taban, T., Kaluc, E. (2015). Friction Stir Spot Welding aof Aluminium Alloys: A Recent Review. *Materials Testing*, Volume 57, 608 – 627.

Ozturk, F., Sisman, A., Toros, S., Kilic, S., & Picu, R. C. (2010). Influence of aging treatment on mechanical properties of 6061 aluminum alloy. *Materials and Design*, 31(2), 972–975. <https://doi.org/10.1016/j.matdes.2009.08.017>

Padmanaban, R., Vignesh, R. V., Arivarasu, M., Karthick, K. P., & Sundar, A. A. (2016). Process Parameters Effect on The Strength of Friction Stir Spot-Welded AA6061. *ARP Journal of Engineering and Applied Sciences*, Volume 11(9), 6030–6035.

Paidar, M., Khodabandeh, A., Najafi, H., & Rouh-aghdam, A. S. (2014). *Effects of the tool rotational speed and shoulder penetration depth on mechanical properties and failure modes of friction stir spot welds of aluminum 2024-T3 sheets*. 28(12), 4893–4898. <https://doi.org/10.1007/s12206-014-1108-0>

Paidar, M., Sadeghi, F., Najafi, H., & Khodabandeh, A. R. (2015). Effect of Pin and Shoulder Geometry on Stir Zone and Mechanical Properties of Friction Stir Spot-



Paidar, M., Khodabandeh, A., Sarab, M. L., & Taheri, M. (2015). Effect of welding parameters (plunge depths of shoulder , pin geometry , and tool rotational speed) on the failure mode and stir zone characteristics of friction stir spot welded aluminum 2024-T3 sheets. *Journal of Mechanical Science and Technology*, Volume 29(11), 4639–4644.

Paidar, M., Sadeghi, F., Najafi, H., & Khodabandeh, A. R. (2017). *Effect of Pin and Shoulder Geometry on Stir Zone and Mechanical Properties of Friction Stir Spot-Welded Aluminum Alloy 2024-T3 Sheets*. 137(July 2015), 4–9.  
<https://doi.org/10.1115/1.4030197>

Parra, B., & Aa-t, P. P. A. L. (2011). An Investigation on Friction Spot Welding in AA6181-T4 alloy. *Tecnol. Metal. Mater. Miner.*, São Paulo, Volume 8(3), 184–190.

Pathak, N., Bandyopadhyay, K., Sarangi, M., & Panda, S. K. (2013). Microstructure and Mechanical Performance of Friction Stir Spot-Welded Aluminum-5754 Sheets. *Journal of Materials Engineering and Performance*, Volume 22(1), 131–144.

Piccini, J. M., & Svoboda, H. G. (2015). Effect of pin length on Friction Stir Spot Welding (FSSW) of dissimilar Aluminum-steel joints. *Procedia Materials Science*, Volume 9, 504–513.

Radutoiu, N., Alexis, J., Lacroix, L., Petit, J. A., Abrudeanu, M., Rizea, V., & Vulpe, S. (2012). Effect of the over-ageing treatment on the mechanical properties of AA2024 aluminum alloy. *Revista de Chimie*, 63(10), 1042–1045.

Rajan, R., Kah, P., Mvola, B., & Martikainen, J. (2015). Trends in Aluminium Alloy Development and their Joining Methods. *Rev. Mater. Sci.*, Volume 44, 383-397.

Rambabu P., N. Eswara Prasad, V.V. Kutumbarao and R.J.H. Wanhill (2017). Aluminium Alloys for Aerospace Applications. *Aerospace Materials and Material Technologies*, Indian Institute of Metals Series, Springer Science+Business Media Singapore.

Rai, R., Bhadeshia, H. K. D. H., & Debroy, T. (2011). Review: friction stir welding tools. *Science and Technology of Welding and Joining*, Volume 16(4), 325–342.

Rao, H. M., Yuan, W., & Badarinarayan, H. (2015). Effect of process parameters on mechanical properties of friction stir spot welded magnesium to aluminum alloys. *Materials and Design*, 66, 235–245. <https://doi.org/10.1016/j.matdes.2014.10.065>

Reilly, A., Shercliff, H., Chen, Y., & Prangnell, P. (2015). Modelling and visualisation of material flow in friction stir spot welding. *Journal of Materials Processing Technology*, Volume 225, 473–484.

Reis, D. A. P., Couto, A. A., Jr, N. I. D., Hirschmann, A. C. O., Zepka, S., Neto, C. M., Paulo, S. (2012). Effect of Artificial Aging on the Mechanical Properties of an Aerospace Aluminum Alloy 2024. *Defect and Diffusion Forum*, Vols. 326-328, 193–198.



Sarkar, R., Pal, T. K., & Shome, M. (2016). Material flow and intermixing during friction stir spot welding of steel. *Journal of Materials Processing Technology*, Volume 227, 96–109.

Seetharaman, R., Ravisankar, V., & Balasubramanian, V. (2015). Corrosion performance of friction stir welded AA2024 aluminium alloy under salt fog conditions. *Transactions of Nonferrous Metals Society of China*, Volume 25(5), 1427–1438.

Sekhar, S. R., Chittaranjandas, V., Govardhan, D., & Karthikeyan, R. (2018). Effect Of Tool Rotational Speed On Friction Stir Spot Welded Aa5052 – H38 Aluminum Alloy. *ScienceDirect Materials Today: Proceedings*, 5(2), 5536–5543.  
<https://doi.org/10.1016/j.matpr.2017.12.144>

Schmidt H., J. Hattel, J. Wert, (2004). An analytical model for the heat generation in friction stir welding, Modelling and Simullation in Materials Science and Engineering, Volume 12, 143–157.

Shahani, A. R., & Farrahi, A. (2019). Experimental investigation and numerical modeling of the fatigue crack growth in friction stir spot welding of lap-shear specimen. *International Journal of Fatigue*, 125(April), 520–529.  
<https://doi.org/10.1016/j.ijfatigue.2019.04.026>

Shen, Z., Yang, X., Zhang, Z., Cui, L., & Yin, Y. (2013). Mechanical properties and failure mechanisms of friction stir spot welds of AA 6061-T4 sheets. *Materials and Design*, Volume 49, 181–191.

Solanki, K. N., Jordon, J. B., Whittington, W., Rao, H., & Hubbard, C. R. (2012). Structure-property relationships and residual stress quantification of a friction stir spot welded magnesium alloy. *Scripta Materialia*, Volume 66(10), 797–800.

Sprovieri, Jhon. (2016). Friction Stir Spot Welding. Assembly Magazine p. 1-6.  
<http://www.assemblymag.com/articles/93337>

Su, Z., He, R., Lin, P., & Dong, K. (2014). *Fatigue analyses for swept friction stir spot welds in lap-shear specimens of alclad 2024-T3 aluminum sheets*. 61, 129–140.  
<https://doi.org/10.1016/j.ijfatigue.2013.11.021>

Su, Z.-M., Qiu, Q.-H., & Lin, P.-C. (2016). Design of Friction Stir Spot Welding Tools by Using a Novel Thermal-Mechanical Approach. *Materials*, Volume 9(8), 677 1-16.

Sun, Y., Morisada, Y., Fujii, H., & Tsuji, N. (2018). Materials Characterization Ultra fine grained structure and improved mechanical properties of low temperature friction stir spot welded 6061-T6 Al alloys. *Materials Characterization*, 135(November 2017), 124–133. <https://doi.org/10.1016/j.matchar.2017.11.033>

Sun, Y. F., Fujii, H., Sato, Y., & Morisada, Y. (2019). Friction stir spot welding of SPCC low carbon steel plates at extremely low welding temperature. *Journal of Materials Science & Technology*, 35(5), 733–741.  
<https://doi.org/10.1016/j.jmst.2018.11.011>

Standar International ISO 14272. *Specimen dimensions and procedure for cross tension testing resistance spot and embossed projection welds*. ISO 2000 Published in Switzerland



Thomas, W.M. (1998). Friction stir welding and related friction process characteristics. Inalco, International conference joint in aluminium Cambridge, UK.

Tozaki, Y., Uematsu, Y., & Tokaji, K. (2010). A newly developed tool without probe for friction stir spot welding and its performance. *Journal of Materials Processing Technology*, Volume 210(6–7), 844–851.

Uematsu, Y., Tokaji, K., Tozaki, Y., & Nakashima, Y. (2010). Fatigue behaviour of dissimilar friction stir spot weld between A6061 and SPCC welded by a scrolled groove shoulder tool. *Procedia Engineering*, Volume 2 (2010) 193–201.

Uematsu, Y., Tokaji, K., Tozaki, Y., Nakashima, Y., & Shimizu, T. (2011). Fatigue behaviour of dissimilar friction stir spot welds between A6061-T6 and low carbon steel sheets welded by a scroll grooved tool without probe. *Fatigue and Fracture of Engineering Materials and Structures*, Volume 34(8), 581–591.

Voort, V G. F., (1984). *Metallography, principle and practice*. McGraw- Hill Inc.

Venukumar, S., Yalagi, S., & Muthukumaran, S. (2013). Comparison of microstructure and mechanical properties of conventional and refilled friction stir spot welds in AA 6061-T6 using filler plate. *Transaction of Nonferrous Metals Soceity of China*, Volume 23, 2833–2842.

Venukumar, S., Yalagi, S. G., Muthukumaran, S., & Kailas, S. V. (2014). *Static shear strength and fatigue life of refill friction stir spot welded AA 6061-T6 sheets*. 19(3), 214–224. <https://doi.org/10.1179/1362171813Y.0000000181>

Wang, D. A., & Lee, S. C. (2007). Microstructures and failure mechanisms of friction stir spot welds of aluminum 6061-T6 sheets. *Journal of Materials Processing Technology*, Volume 186(1–3), 291–297.

Wang, B., Chen, X., Pan, F., Mao, J., & Fang, Y. (2015). Effects of cold rolling and heat treatment on microstructure and mechanical properties of AA 5052 aluminum alloy. *Transactions of Nonferrous Metals Society of China*, Volume 25(8), 2481–2489.

Yang, Q., Mironov, S., Sato, Y. S., & Okamoto, K. (2010). Material flow during friction stir spot welding. *Materials Science and Engineering A*, Volume 527(16–17), 4389–4398.

Yang, X. W., Fu, T., & Li, W. Y. (2014). Friction Stir Spot Welding: A Review on Joint Macro-and Microstructure, Property, and Process Modelling. *Advances in Materials Science and Engineering*, Volume 2014, Article ID 697170, 11 pages.

Yuan, W., Mishra, R. S., Webb, S., Chen, Y. L., Carlson, B., Herling, D. R., & Grant, G. J. (2011). Effect of tool design and process parameters on properties of Al alloy 6016 friction stir spot welds. *Journal of Materials Processing Technology*, 211(6), 972–977. <https://doi.org/10.1016/j.jmatprotec.2010.12.014>

Yuan, W., Mishra, R. S., Carlson, B., Verma, R., & Mishra, R. K. (2012). Material flow and microstructural evolution during friction stir spot welding of AZ31 magnesium alloy. *Materials Science and Engineering A*, Volume 543, 200–209.



Zhang, Z., Yang, X., Zhang, J., Zhou, G., Xu, X., & Zou, B. (2011). Effect of welding parameters on microstructure and mechanical properties of friction stir spot welded 5052 aluminum alloy. *Materials and Design*, 32(8–9), 4461–4470.  
<https://doi.org/10.1016/j.matdes.2011.03.058>

Zhang, B., Chen, X., Pan, K., Li, M., & Wang, J. (2019). Thermo-mechanical simulation using microstructure-based modeling of friction stir spot welded AA 6061-T6. *Journal of Manufacturing Processes*, 37(August 2018), 71–81.  
<https://doi.org/10.1016/j.jmapro.2018.11.010>

Zhang Y. N., X. Cao, S. Larose and P. Wanjara (2012). Review of tools for friction stir welding and processing, Canadian Metallurgical Quarterly, Volume 51(3), 250-261.

Zhou, L., Liu, D., Nakata, K., Tsumura, T., Fujii, H., Ikeuchi, K., Morimoto, M. (2012). New technique of self-refilling friction stir welding to repair keyhole. *Science and Technology of Welding and Joining*. Volume 17(8), 649–655.

Zhou, L., Zhang, R. X., Li, G. H., Zhou, W. L., Huang, Y. X., & Song, X. G. (2018). *Effect of pin profile on microstructure and mechanical properties of friction stir spot welded Al-Cu dissimilar metals*. 36(July), 1–9.  
<https://doi.org/10.1016/j.jmapro.2018.09.017>