

## DAFTAR PUSTAKA

- Acero, J., Calderon, J., Salmeron, J. I., Verdaguer, J. J., Concejo, C., dan Somacarrera, M. L., 1999, The behaviour of titanium as a biomaterial: microscopy study of plates and surrounding tissues in facial osteosynthesis, *Journal of Craniomaxillofacial Surgery*, 27(2), pp. 117–123.
- Alias, A., Abdullah, B., dan Abbas, N. M., 2012, Influence of machine feed rate in wedm of titanium Ti-6Al-4V with constant current (6A) using brass wire, *Procedia Engineering*, 41, pp. 1806-1811.
- Arifvianto, B., Suyitno, dan Mahardika, M., 2013, Surface modification of titanium using steel slag ball and shot blasting treatment for biomedical implant applications, *International Journal of Minerals Metallurgy and Materials*, 20(8), pp. 788-795.
- Arslan, Y., dan Özdemir, A., 2016, Punch structure, punch wear and cut profiles of AISI 304 stainless steel sheet blanks manufactured using cryogenically treated AISI D3 tool steel punches, *International Journal of Advanced Manufacturing Technology*, 87(1–4), pp. 587–599.
- ASTM B256-08b, Standard specification for titanium and titanium alloy strip, sheet and plate.
- Bing, G. J. A., dan Wallbank, J., 2008, The effect of using a sprung stripper in sheet metal cutting, *Journal of Materials Processing Technology*, 200(1–3), pp. 176–184.
- Callister, D. W., 2001, *Fundamentals of Materials Science and Engineering*, 5<sup>th</sup> edition, John Wiley & Sons, Inc, United states of America.
- Campbell, C. J., dan Gill, S. P. A., 2019, An analytical model for the flat punch indentation size effect, *International Journal of Solids and Structures*, 171, pp. 81–91.

- Che-Haron, C. H., dan Jawaid, A., 2005, The effect of machining on surface integrity of titanium alloy Ti–6%Al–4%V, *Journal of Materials Processing Technology*, 166, pp. 188–192.
- Chen, F, dan Chiu, K., 2005, Stamping formability of pure titanium sheets, *Journal of Materials Processing Technology*, 170(1–2), pp. 181–186.
- Chen, K., Meng, W. J., Mei, F., Hiller, J., dan Miller, D. J., 2011, From micro- to nano-scale molding of metals: Size effect during molding of single crystal Al with rectangular strip punches, *Acta Materialia*, 59(3), pp. 1112–1120.
- Chen, Z.H., Chan, L.C., Lee, T.C., dan Tang, C.Y., 2003, An investigation on the formation and propagation of shear band in fine-blanking process, *Journal of Materials Processing Technology*, 138(1–3), pp. 610-614.
- Chern, G. L., dan Wang, S. D., 2007, Punching of noncircular micro-holes and development of micro-forming, *Precision Engineering*, 31(3), pp. 210-217.
- Eichenhueller, B., Egerer, E., dan Engel, U., 2007, Microforming at elevated temperature – forming and material behaviour, *The International Journal of Advanced Manufacturing Technology*, 33, pp. 119–124.
- Giancoli, D. C., 2014, *Physics principles with applications*, 7th edition, Pearson Education, Boston.
- Gotoh, M., dan Yamashita, M., 2001, A study of high-rate shearing of commercially pure aluminum sheet, *Journal of Materials Processing Technology*, 110(3), pp. 253–264.
- Groover, M. P., 2010, *Fundamentals of modern manufacturing: materials, processes and systems*, 4<sup>th</sup> edition, John Wiley & Sons, Inc, United State of America.
- Guo, W., dan Tam, H. Y., 2013, Influence of the processing time on the finishing of punched micro holes by planetary stirring with natural sand grains, *Journal of Engineering Manufacture*, 227(6), pp. 1–9.

- Guo, W., dan Tam, H. Y., 2014, Effects of carbon nanotubes on wear of WC/Co micropunches, *International Journal of Advanced Manufacturing Technology*, 72(1–4), pp. 269–275.
- Guo, W., dan Tam, H. Y., 2012, Effects of extended punching on wear of the WC/Co micropunch and the punched microholes, *International Journal of Advance Manufacturing Technology*, 59(9–12), pp. 955–960.
- Gürün, H., Göktaş, M., dan Güldaş, A., 2016, Experimental examination of effects of punch angle and clearance on shearing force and estimation of shearing force using fuzzy logic, *Transactions of Famena*, 40(3), pp. 19–28.
- Hama, T., Nagao, H., Kobuki, A., Fujimoto, H., dan Takuda, H., 2015, Work-hardening and twinning behaviors in a commercially pure titanium sheet under various loading paths, *Materials Science & Engineering A*, 620, pp. 390–398
- Hambli, R., 2002, Design of Experiment Based Analysis for Sheet Metal Blanking Processes Optimisation, *International Journal of Advance Manufacturing Technology*, 19(6), pp. 403–410.
- Hung, Y. C., Chang, Y. J., Kuo, C. L., Hsu, C. J., dan Ho, C. C., 2016, Comparison between Laser and Stamping without Die (SWD) for Micro Tapered Hole Forming, *Applied Sciences*, 6(3), pp. 77.
- Joo, B. Y., Oh, S. I., dan Jeon, B. H., 2001, Development of micro punching system, *CIRP Annals*, 50(1), pp. 191–194.
- Joo, B. Y., Rhim, S. H., dan Oh, S. I., 2005, Micro-hole fabrication by mechanical punching process, *Journal of Materials Processing Technology*, 170(3), pp. 593–601.
- Kalpajian, S., Schmid, S. R., dan Musa, H., 2009, *Manufacturing Engineering And Technology*, 8<sup>th</sup> edition, Prentice Hall.
- Kibe, Y., Okada, Y., dan Mitsui, K., 2007, Machining accuracy for shearing process of thin-sheet metals - Development of initial tool position adjustment system,

*International Journal of Machine Tools and Manufacture*, 47(11), pp. 1728–1737.

Kolleck, R., Vollmer, R., dan Veit, R., 2011, Investigation of a combined micro-forming and punching process for the realization of tight geometrical tolerances of conically formed hole patterns, *CIRP Annals*, 60(1), pp. 331–334.

Kumar, A., Kumar, V., dan Kumar, J., 2013, Experimental investigation on material transfer mechanism in WEDM of pure titanium (grade-2), *Advances in Materials Science and Engineering*, 2013, pp. 20.

Kumar, A., Kumar, V., dan Kumar, J., 2016, Surface crack density and recast layer thickness analysis in WEDM process through response surface methodology, *Machining Science and Technology*, 20(2), pp. 201–230.

Kumar, S., dan Dhingra, A. K., 2018, Effects of machining parameters on performance characteristics of powder mixed EDM of inconel-800, *International Journal of Automotive and Mechanical Engineering*, 15(2), pp. 5221–5237.

Kutuniva, K., Karjalainen, J. A., dan Mantyjarvi, K., 2012, Effect of convex sheared punch geometry on cutting force of ultra-high-strength steel, *Key Engineering Materials*, 504–506, pp. 1359–1364.

Kwak, T. S., Kim, Y. J., dan Bae, W. B., 2002, Finite element analysis on the effect of die clearance on shear planes in fine blanking, *Journal of Materials Processing Technology*, 130–131, pp. 462–468.

Larue, A., Ranc, N., Qu, Y. F., Millot, M., Lorong, P., dan Lapujoulade, F., 2008, Experimental study of a high speed punching process, *International Journal of Material Forming*, 1(1), pp. 1427–1430.

Lee, H. T., dan Tai, T. Y., 2003, Relationship between EDM parameters and surface crack formation, *Journal of Materials Processing Technology*, 142, pp. 676–683.

Lim, L. C., Lee, L. C., Wong, Y. S., dan Lu, H. H., 1991, Solidification microstructure of discharge machined surfaces of tool steels, *Materials Science and Technology*, 7(3), pp. 239–248.

- Lin, J. C., Kingsun, L., Chiaming, Y., Wujen, L., dan Yuhua, L., 2006, Research on the relationship between the clearance and product precision of micro punching dies, *Materials Science Forum*, 532–533, pp. 401–403.
- Lin, Z. C., dan Chang, D. Y., 2003, Tool wear investigation on the precision progressive die for the IC dam-bar cutting process, *International Journal of Advance Manufacturing Technology*, 22(5–6), pp. 344–356.
- Lou, S. Y., 1997, Studies on the wear conditions and the sheared edges in punching, *Wear*, 208(1–2), pp. 81–90.
- Lou, S. Y., 1999, Effect of the geometry and the surface treatment of punching tools on the tool life and wear conditions in the piercing of thick steel plate, *Journal of Materials Processing Technology*, 88(1–3), pp. 122–133.
- Lutjering, G., dan Williams, J.C., 2003, *Titanium*, Springer-Verlag, Berlin.
- Mackensen, A., Golle, M., Golle, R., dan Hoffmann, H., 2010, Experimental investigation of the cutting force reduction during the blanking operation of AHSS sheet materials, *CIRP Annals*, 59(1), pp. 283–286.
- Mahardika, M., Prihandana, G. S., dan Mitsui, K., 2012, Precision machining by discharge pulse counting methods in micro EDM processes, *Journal of Mechanical Science and Technology*, 26(11), pp. 3597–3603.
- Maiti, S. K., Ambekar, A. A., Singh, U. P., Date, P. P., dan Narasimhan, K., 2000, Assessment of influence of some process parameters on sheet metal blanking, *Journal of Materials Processing Technology*, 102(1–3), pp. 249–256.
- Matsuno, H., Yokoyama, A., Watari, F., Uo, M., dan Kawasaki, T., 2001, Biocompatibility and osteogenesis of refractory metal implants, titanium, hafnium, niobium, tantalum and rhenium, *Biomaterials*, 22(11), pp. 1253–1262.
- Meng, B., Fu, M. W., Fu, C. M., dan Wang J. L., 2015, Multivariable analysis of micro shearing process customized for progressive forming of micro-parts, *International Journal of Mechanical Sciences*, 93, pp. 191–203.

- Momani, E. A., dan Rawabdeh, I., 2008, An application of finite element method and design of experiments in the optimization of sheet metal blanking process, *Jordan Journal of Mechanical and Industrial Engineering*, 2(1), pp. 53–63.
- Mori, K., Maeno, T., dan Fuzisaka, S., 2012b, Punching of ultra-high strength steel sheets using local resistance heating of shearing zone, *Journal of Materials Processing Technology*, 212(2), pp. 534–540.
- Mori, K., Saito, S., dan Maki, S., 2008, Warm and hot punching of ultra high strength steel sheet, *CIRP Annals*, 57(1), pp. 321–324.
- Mori, K. I, Abe, Y., dan Suzui, Y., 2010, Improvement of stretch flangeability of ultra high strength steel sheet by smoothing of sheared edge, *Journal of Materials Processing Technology*, 210(4), pp. 653–659.
- Mori, K. I., Maeno, T., dan Maruo, Y., 2012a, Punching of small hole of die-quenched steel sheets using local resistance heating, *CIRP Annals*, 61(1), pp. 255–258.
- Mucha, J., 2010, An experimental analysis of effects of various material tool's wear on burr during generator sheets blanking, *International Journal of Advanced Manufacturing Technology*, 50(5–8), pp. 495–507.
- Muthuramalingam, T., Mohan, B., dan Jothilingam, A., 2014, Effect of tool electrode resolidification on surface hardness in electrical discharge machining, *Materials and Manufacturing Processes*, 29(11–12), pp. 1374–1380.
- Nagarjuna, S., Balasubramanian, K., dan Sarma, D. S., 1997, Effect of prior cold work on mechanical properties and structure of an age-hardened Cu–1.5wt% Ti alloy, *Journal of Materials Science*, 32(13), pp. 3375–3385.
- Newton, T. R., Melkote, S. N., Watkins, T. R., Trejo, R. M., dan Reister, L., 2009, Investigation of the effect of process parameters on the formation and characteristics of recast layer in wire-EDM of Inconel 718, *Materials Science and Engineering A*, 513–514, pp. 208–215.

- Pratama, J., 2018, Studi eksperimental proses punching pada bentuk kompleks dengan material pure titanium menggunakan mesin micro punch cnc, *Thesis*, Program Pasca Sarjana Teknik Mesin, Universitas Gadjah Mada.
- Prayoga, B. T., Dharmastiti, R., Akbar, F., dan Suyitno, 2018, Microstructural characterization, defect and hardness of titanium femoral knee joint produced using vertical centrifugal investment casting, *Journal of Mechanical Science and Technology*, 32(1), pp. 149–156.
- Ragu, K., 2014, Experimental analysis of die clearance distribution in a prestool assembly, *Transactions of FAMENA*, 38(4), pp. 55–64.
- Ramaekers, J. A. H., dan Kals, J. A. G., 1986, Strain, stresses and forces in blanking, *Proceedings of the IMC Conference*, Galway, pp. 126–138.
- Ramulu, M., Jenkins, M. G., dan Daigneault, J. A., 1997, Spark-erosion process effects on the properties and performance of a TiB<sub>2</sub> particulate reinforced/sic matrix ceramic composite, *Ceramic Engineering and Science Processing*, 18(3), pp. 227–238.
- Rhim, S.H., Baek, S.W., dan Oh, S.I., 2006a, Micro via-hole punching of LTCC-PET double layer sheets, *Key Engineering Materials*, 326–328, pp. 509-512.
- Rhim, S.H., Shin, S.Y., Joo, B.Y., dan Oh, S.I., 2006b, Burr formation during micro via-hole punching process of ceramic and pet double layer sheet, *International Journal of Advanced Manufacturing Technology*, 30(3–4), pp. 227–232.
- Ristiawan, I., 2016, Studi eksperimental pengaruh parameter blanking terhadap kualitas sheared edge pada pelat titanium, brass dan copper dengan menggunakan mesin micro punch cnc, *Thesis*, Program Pasca Sarjana Teknik Mesin, Universitas Gadjah Mada.
- Salim, U. A., Suyitno, Magetsari, R. dan Mahardika, M., 2017, Development of the gliding hole of the dynamics compression plate. IOP Conference Series: Material Science Engineering, 172(1), pp. 012060.



- Salim, U. A., 2015, Pengembangan dynamics compression plate (DCP) dengan cold working untuk penguat gliding holes, *Disertasi*, Program Pasca Sarjana Teknik Mesin, Universitas Gadjah Mada.
- Schey, J. A., 2000, *Introduction to manufacturing processes*, 3<sup>th</sup> edition, Mc Graw Hill Higher Education, Singapore.
- Setyana, L. D., Mahardika, M., Sutiyoko, S., dan Suyitno, S., 2019, Influence of gate shape and direction during centrifugal casting on artificial lumbar disc model of cp-ti, *Acta Metallurgica Slovaca*, 25(3), pp. 193–202.
- Singh, U. P., Streppel, A. H., dan Kals, H. J. J., 1992, Design study of the geometry of a punching/blanking tool, *Journal of Materials Processing Technology*, 33(4), pp. 331–345.
- So, H., Fasmann, D., Hoffmann, H., Golle, R., dan Schaper, M., 2012, An investigation of the blanking process of the quenchable boron alloyed steel 22MnB5 before and after hot stamping process, *Journal of Materials Processing Technology*, 212(2), pp. 437–449.
- Subramonian, S., Altan, T., Ciocirlan, B., dan Campbell, C., 2013, Optimum selection of variable punch-die clearance to improve tool life in blanking non-symmetric shapes, *International Journal of Machine Tools and Manufacture*, 75, pp. 63–71.
- Sutiyoko., Suyitno., Mahardika, M., dan Syamsudin, A., 2016, Prediction of shrinkage porosity in femoral stem of titanium investment casting. *Archives of foundry engineering*, 16(4), pp. 157–162.
- Tang, Z., Du, H., Lang, L., Jiang, S., Chena, J., dan Zhang, J., 2018, Experimental investigation into the electropulsing assisted punching process of 2024T4 aluminum alloy sheet, *Journal of Materials Processing Technology*, 253, pp. 86–98.
- Tekiner, Z., Muammer, N., dan Hakan, G., 2006, An experimental study for the effect of different clearances on burr, smooth-sheared and blanking force on aluminium sheet metal, *Materials and Design*, 27(10), pp. 1134–1138.



- Thomson, P. F., 1989, Surface damage in electrodischarge machining, *Materials Science and Technology*, 5, pp. 1153–1157.
- Van Noort, R. 1987, Titanium: the implant material of today, *Journal of Materials Science*, 22(11), pp. 3801–3811.
- Won, C., Lee, S., Seo, J., Park, S.H., dan Yoon, J., 2017, Stripping failure of punching pin in GPa-grade steels, *The International Journal of Advanced Manufacturing Technology*, 94(1–4), pp. 73–83.
- Xu, J., Guo, B., Shan, D., Wang, C., dan Wang, Z., 2013b, Surface quality improvements of WC–Co micro-punch finished by ion beam irradiation for micro-punching process of metal foil, *Surface and Coatings Technology*, 235, pp. 803–810.
- Xu, J., Guo, B., Shan, D., Wang, C., Li, J., Liu, Y., dan Qu, D., 2012, Development of a micro-forming system for micro-punching process of micro-hole arrays in brass foil, *Journal of Materials Processing Technology*, 212(11), pp. 2238–2246.
- Xu, J., Guo, B., Shan, D., Wang, Z., Li, M., dan Fei, X., 2013a, Micro-punching process of stainless steel foil with micro-die fabricated by micro-EDM, *Microsystem Technologies*, 20(1), pp. 83–89.
- Yan, B. H., Tsai, H. C., dan Huang, F. Y., 2005, The effect in EDM of a dielectric of a urea solution in water on modifying the surface of titanium. *International Journal of Machine Tools and Manufacture*, 45, pp. 194–200.
- Yi, M. S., Joo, B. Y., Park, M. S., Chu, C. N., dan Oh, S. I., 2006, Mechanical punching of 15  $\mu\text{m}$  size hole, *Microsystem Technologies*, 12(9), pp. 877–882.