

REFERENCES

- [1] P. LACKI J. ADAMUS. Investigation of sheet-titanium forming with flexible tool - experiment and simulation. *Archives Of Metallurgy and Materials*, 57(4):1247–1252, 2012.
- [2] J. ADAMUS. Theoretical and experimental analysis of the sheet-titanium forming process. *Archives Of Metallurgy and Materials*, 54(3), 2009.
- [3] Jan Sieniawski Maciej Motyka. The influence of initial plastic deformation on microstructure and hot plasticity of $\alpha+\beta$ titanium alloys. *Archives of Materials Science and Engineering*, 41(2):95–103, 2010.
- [4] V. Psyk, D. Risch, B.L. Kinsey, A.E. Tekkaya, and M. Kleiner. Electromagnetic forming - a review. *Journal of Materials Processing Technology*, 211(5):787 – 829, 2011. Special Issue: Impulse Forming.
- [5] Anwar Kandil. An experimental study of hydroforming deep drawing. *Journal of Materials Processing Technology*, 134(1):70 – 80, 2003.
- [6] S.L. Semiatin, editor. *ASM Handbook Volume 14B: Metalworking: Sheet Forming*. ASM International, 2006.
- [7] Mikell Groover. *Fundamentals of modern manufacturing*. Wiley, 2009.
- [8] John Monaghan Mark Colgan. Deep drawing process: analysis and experiment. *Journal of Materials Processing Technology*, 132:35–41, 2003.
- [9] Ronald A. Kohser J. T. Black. *DeGarmo's Materials and Processes in Manufacturing*. Wiley, 2011.
- [10] Abdolhamid Gorji, Hasan Alavi-Hashemi, Mohammad Bakhshi-jooybari, Salman Nourouzi, and Seyed Jamal Hosseinipour. Investigation of hydrodynamic deep drawing for conical cylindrical cups. *International Journal of Advanced Manufacturing Technology*, 56:915–927, 2011.

- [11] Surajit Kumar Paul. Theoretical analysis of strain- and stress-based forming limit diagrams. *The Journal of Strain Analysis for Engineering Design*, 48(3):177–188, 2013.
- [12] S.P. Keeler and W.A. Backofen. Plastic instability and fracture in sheets stretched over rigid punches. *ASM – Transactions*, 56(1):25–48, 1963.
- [13] Gorton M. Goodwin. Application of strain analysis to sheet metal forming problems in the press shop. In *SAE Technical Paper*. SAE International, 02 1968.
- [14] Ben Hmida Ramzi, Thibaud Sebastien, Richard Fabrice, Hapsari Gemala, and MalÃ¢cot Pierrick. Numerical prediction of the forming limit diagrams of thin sheet metal using spif tests. *Procedia Engineering*, 183:113 – 118, 2017. 17th International Conference on Sheet Metal, SHMET17.
- [15] M. Merklein, M. Geiger, and M. Celeghini. Combined tube and double sheet hydroforming for the manufacturing of complex parts. *CIRP Annals*, 54(1):199 – 204, 2005.
- [16] Abhishek Kumar, Santosh Kumar, and D. R. Yadav. Review of rubber based sheet hydro-forming processes. In *5th International & 26th All India Manufacturing Technology, Design and Research Conference (AIMTDR 2014)*. AIMTDR2014, 2014.
- [17] E. Battikha and D.J. Browne. Experimental rubber-pad forming of aluminium sheet. In *9th Conf. Irish Manufacturing Committee, University College Dublin*, page 479, September 1992.
- [18] Giuseppe Sala. A numerical and experimental approach to optimise sheet stamping technologies: part ii aluminium alloys rubber-forming. *Materials & Design*, 22(4):299 – 315, 2001.
- [19] Maziar Ramezani Zaidi Mohd Ripin. *Rubber-Pad Forming Processes: Technology and Applications*. Woodhead Publishing, 2012.

REFERENCES

- [20] Maziar Ramezani and Zaidi Mohd Ripin. A study on high ratio cup drawing by maslennikov's process. *The International Journal of Advanced Manufacturing Technology*, 58(5-8):503, January 2012.
- [21] S. Thiruvarudchelvan. Free forming of near-hemispherical shells using a urethane pad. *Journal of Mechanical Working Technology*, 18(1):5 – 15, 1989.
- [22] S Thiruvarudchelvan. Elastomers in metal forming: A review. *Journal of Materials Processing Technology*, 39(1):55 – 82, 1993.
- [23] P. J. MOSEDALE. The use of “avothane” for metal forming. *Sheet Metal Industries*, pages 257–267, 1965.
- [24] H.A. Al-Qureshi. Analytical investigation of ram movement in piercing operation with rubber pads. *International Journal of Machine Tool Design and Research*, 12(3):229 – 248, 1972.
- [25] N. Alberti, A. Forcellese, L. Fratini, and F. Gabrielli. Sheet metal forming of titanium blanks using flexible media. *CIRP Annals*, 47(1):217 – 220, 1998.
- [26] S.H. Rhim, Y.K. Son, and S.I. Oh. Punching of ultra small size hole array. *CIRP Annals*, 54(1):261 – 264, 2005.
- [27] Xiao Wang, Yaoqiang Yuan, Zongbao Shen, Chunxing Gu, Qiang Zhang, and Huixia Liu. Investigation of the forming pressure and formability of metal foil by laser-driven multi-layered flyer. *Optics & Laser Technology*, 58:151 – 160, 2014.
- [28] M. Geiger and A. Sprenger. Controlled bending of aluminium extrusions. *CIRP Annals*, 47(1):197 – 202, 1998.
- [29] Test Tooling Solution Group. Fea simulation process flow. [Online; accessed 22-August-2018].
- [30] David J. Browne and Emil Battikha. Optimisation of aluminium sheet forming using a flexible die. *Journal of Materials Processing Technology*, 55(3):218 – 223, 1995.

- [31] M.Husnu Dirikolu and Esra Akdemir. Computer aided modelling of flexible forming process. *Journal of Materials Processing Technology*, 148(3):376 – 381, 2004.
- [32] Lei Chen, Huiqin Chen, Weigang Guo, Guojin Chen, and Qiaoyi Wang. Experimental and simulation studies of springback in rubber forming using aluminium sheet straight flanging process. *Materials & Design (1980-2015)*, 54:354 – 360, 2014.
- [33] H.C Kwon, Y.T Im, D.C Ji, and M.H Rhee. The bending of an aluminum structural frame with a rubber pad. *Journal of Materials Processing Technology*, 113(1):786 – 791, 2001. 5th Asia Pacific conference on Materials processing.
- [34] M. Yamashita, T. Hattori, and N. Nishimura. Numerical simulation of sheet metal drawing by maslennikov's technique. *Journal of Materials Processing Technology*, 187-188:192 – 196, 2007. 3rd International Conference on Advanced Forming and Die Manufacturing Technology.
- [35] Maziar Ramezani, Zaidi Mohd Ripin, and ROSLAN AHMAD. Numerical simulation of sheet stamping process using flexible punch. 223:829–840, 07 2009.
- [36] Linfa Peng, Peng Hu, Xinmin Lai, Deqing Mei, and Jun Ni. Investigation of micro/meso sheet soft punch stamping process simulation and experiments. *Materials & Design*, 30(3):783 – 790, 2009.
- [37] Chul Kyu Jin, Min Geun Jeong, and Chung Gil Kang. Fabrication of titanium bipolar plates by rubber forming and performance of single cell using tin-coated titanium bipolar plates. *International Journal of Hydrogen Energy*, 39(36):21480 – 21488, 2014.
- [38] Yanxiong Liu and Lin Hua. Fabrication of metallic bipolar plate for proton exchange membrane fuel cells by rubber pad forming. *Journal of Power Sources*, 195(11):3529 – 3535, 2010.
- [39] Q. Zhang, Z.R. Wang, and T.A. Dean. The mechanics of multi-point sandwich forming. *International Journal of Machine Tools and Manufacture*, 48(12):1495 – 1503, 2008.

REFERENCES

- [40] Yanxiong Liu, Lin Hua, Jian Lan, and Xi Wei. Studies of the deformation styles of the rubber-pad forming process used for manufacturing metallic bipolar plates. *Journal of Power Sources*, 195(24):8177 – 8184, 2010.
- [41] Yong na SUN, Min WAN, and Xiang dong WU. Wrinkling prediction in rubber forming of ti-15-3 alloy. *Transactions of Nonferrous Metals Society of China*, 23(10):3002 – 3010, 2013.
- [42] *Abaqus Manual Version 6.8*. SIMULIA, 2008.
- [43] George E. Dieter. *Mechanical Metallurgy*. McGraw Hill, 2017.
- [44] Britannica Online Encyclopedia. Rubber. Accessed: 2018-08-22.
- [45] Encyclopedia Britannica Online. Polyisoprene. Accessed: 2018-06-25.
- [46] Andrew Ciesielski. *An Introduction to Rubber Technology*. Elsevier (S&T), 1999.
- [47] R. C. GUPTA A. K. CHITALE. *PRODUCT DESIGN AND MANUFACTURING*. PHI learning Private Limited, New Delhi, 2012.
- [48] M Asimow. *An Introduction To Design*. Prentice Hall, 1962.
- [49] Bharatkumar Modi and D. Ravi Kumar. Development of a hydroforming setup for deep drawing of square cups with variable blank holding force technique. *The International Journal of Advanced Manufacturing Technology*, 66(5-8):1159, May 2013.
- [50] B S Hyun and H S Cho. Prediction of forming pressure curve for hydroforming processes using artificial neural network. 208:109–121, 06 1994.
- [51] Ho Choi, Muammer Koc, and Jun Ni. Determination of optimal loading profiles in warm hydroforming of lightweight materials. *Journal of Materials Processing Technology*, 190(1):230 – 242, 2007.
- [52] Hyunbo Shim and Dong Yol Yang. A simple method to determine pressure curve for sheet hydro-forming and experimental verification. *Journal of Materials Processing Technology*, 169(2):134 – 142, 2005.

- [53] J.C. Gelin, C. Labergere, and S. Thibaud. Modelling and process control for the hydroforming of metallic liners used for hydrogen storage. *Journal of Materials Processing Technology*, 177(1):697 – 700, 2006. Proceedings of the 11th International Conference on Metal Forming 2006.
- [54] E. Buerk. Hydromechanical drawing. *Sheet Met. Ind*, 43(474):787–794, 1966.
- [55] S.H. Zhang and J. Danckert. Development of hydro-mechanical deep drawing. *Journal of Materials Processing Technology*, 83(1):14 – 25, 1998.
- [56] M. Sander F. Vollertsen, T. Prange. Hydro-forming: needs, developments and perspectives. In *Advanced Technology of Plasticity 1999: Proceedings of the 6th International Conference on Technology of Plasticity Nuremberg*, volume 6, page 1197–1210, 1999.
- [57] Eshel RR Betser AA Tirosh JJ, Yosifon SS. Hydroforming process for uniform wall thickness products. *ASME. J. Eng. Ind.*, 99(3):685–691, 1977.
- [58] S. Yossifon and J. Tirosh. Rupture instability in hydroforming deep-drawing process. *International Journal of Mechanical Sciences*, 27(9):559 – 570, 1985.
- [59] T.S. Noh and D.Y. Yang. An analysis of hydroforming of regular polygonal boxes. *International Journal of Mechanical Sciences*, 29(2):139 – 148, 1987.
- [60] Yang DY Noh TS. A general formulation for hydroforming of arbitrarily-shaped boxes and its application to hydroforming of an elliptic-circular box. *ASME. J. Manuf. Sci. Eng.*, 120(3):481–488, 1998.
- [61] V.C. Goold Cyril Donaldson, George H. LeCain. *Tool Design*. Tata McGraw Hill Education Private Limited, 2012.
- [62] D. Ravi Kumar Bharatkumar Modi. Development of a hydroforming setup for deep drawing of square cups with variable blank holding force technique. *International Journal Advanced Manufacturing Technology*, 2012.
- [63] HBM India. Specifications of u2b load cell. Accessed: 2018-08-22.
- [64] HBM India. Specifications of p8ap pressure transducer. Accessed: 2018-08-22.

REFERENCES

- [65] HBM India. Specifications of quantum x mx1615 b. Accessed: 2018-08-22.
- [66] HBM India. Catman data acquisition software. Accessed: 2018-08-22.
- [67] Astm e3-11 standard guide for preparation of metallographic specimens, 2017.
- [68] Astm e112-13 standard test methods for determining average grain size, 2017.
- [69] Davis & Associates J. R. Davis, editor. *ASM Specialty Handbook: Copper and Copper Alloys*. ASM International, 2001.
- [70] Vasco Manuel Neto Simões. Analysis of the influence of process parameters in the deep drawing of a cylindrical cup. Master's thesis, Departamento De Engenharia Mecanica, Universidade De Coimbra, Coimbra, Portugal, 2012.
- [71] Subimal Dinda. *How to Use Circle Grid Analysis for Die Tryout*. ASM International, 1981.
- [72] Stuart P. Keeler. "circular grid system" a valuable aid for evaluating sheet metal formability. In *SAE Technical Paper*. SAE International, 02 1968.
- [73] Dr.R.Uday Kumar. Analysis of major strains and minor strains in sheet metal forming. *International Journal of Application or Innovation in Engineering & Management*, 2013.
- [74] M.P. Sklad. Aspects of automated measurement of proportional and non-proportional deformation in sheet metal forming. *Journal of Materials Processing Technology*, 145(3):377 – 384, 2004.
- [75] Bao-Quan Shi and Jin Liang. Circular grid pattern based surface strain measurement system for sheet metal forming. *Optics and Lasers in Engineering*, 50(9):1186 – 1195, 2012.
- [76] M Gerooei and B M Dariani. Strain-rate-dependent forming limit diagrams for sheet metals. *Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture*, 222(12):1651–1659, 2008.
- [77] L. Wang and T.C. Lee. The effect of yield criteria on the forming limit curve prediction and the deep drawing process simulation. *International Journal of Machine Tools and Manufacture*, 46(9):988 – 995, 2006.

- [78] Jan Slota and E Spisak. Comparison of the forming - limit diagram (fld) models for drawing quality (dq) steel sheets. 44:249–253, 10 2005.
- [79] D.W.A. Rees and R.K. Power. Forming limits in a clad steel. *Journal of Materials Processing Technology*, 45(1):571 – 575, 1994.
- [80] Stuart P. Keeler Robert H. Wagoner, Kwai S. Chan. *Forming Limit Diagrams: Concepts, Methods, and Applications*. TMS, 1989.
- [81] Zdzislaw Marciniak and Kazimierz Kuczynski. Limit strains in the processes of stretch-forming sheet metal. *International Journal of Mechanical Sciences*, 9(9):609 – 620, 1967.
- [82] D. Banabic. Forming limit diagrams predicted by using the new hill's criterion. In *Proceedings of the 3rd International Conference NUMISHEET '96: Numerical Simulation of 3D Sheet Forming Processes : Verification of Simulation with Experiments : Dearborn, Michigan*, pages 240–245, 1996.
- [83] D Banabic and E Dannenmann. Prediction of the influence of yield locus on the limit strain in sheet metals. 109:9–12, 02 2001.
- [84] A BARATADAROCHA, Frederic Barlat, and J.M. Jalinier. Prediction of the forming limit diagrams of anisotropic sheets in linear and non-linear loading. 68:151–164, 01 1985.
- [85] Jianshe Lian and Bernard Baudelet. Forming limit diagram of sheet metal in the negative minor strain region. *Materials Science and Engineering*, 86:137 – 144, 1987.
- [86] Hitoshi Moritoki. Criterion and mode of the forming limit in sheet forming. *Journal of Materials Processing Technology*, 31(3):363 – 378, 1992.
- [87] S.J.Hu Z. Marciniak, J.L.Duncan. *Mechanics of Sheet Metal Forming*. Butterworth-Heinemann, 2002.
- [88] Farshid Dehghani and Mahmoud Salimi. Analytical and experimental analysis of the formability of copper-stainless-steel 304l clad metal sheets in deep drawing. 82, 06 2015.

REFERENCES

- [89] Henry S. Valberg. *Applied Metal Forming: Including FEM Analysis*. Cambridge University Press, 2010.
- [90] A.Erman Tekkaya. State-of-the-art of simulation of sheet metal forming. *Journal of Materials Processing Technology*, 103(1):14 – 22, 2000.
- [91] A.Erman Tekkaya. Comparison of implicit and explicit finite element methods for the hydroforming process of an automobile lowerarm. *The International Journal of Advanced Manufacturing Technology*, 20(6):407–413, 2002.
- [92] D T Gethin T.V. Korochkina, T.C. Claypole. Choosing constitutive models for elastomers used in printing processes. In *Constitutive Models for Rubber IV - : Proceedings of the Fourth European Conference for Constitutive Models for Rubber, Sweden*, pages 431–436, 2005.
- [93] Claudio Garcia, Diego Celentano, Fernando Flores, Jean-Philippe Ponthot, and Omar Oliva. Numerical modelling and experimental validation of steel deep drawing processes: Part ii: Applications. *Journal of Materials Processing Technology*, 172(3):461 – 471, 2006.

BIBLIOGRAPHY

- [1] M Asimow (1962) *An Introduction To Design*, Prentice Hall
- [2] Maziar Ramezani Zaidi Mohd Ripin (2012) *Rubber-Pad Forming Processes: Technology and Applications*, Woodhead Publishing
- [3] Subimal Dinda (1981) *How to Use Circle Grid Analysis for Die Tryout*, ASM International
- [4] Robert H. Wagoner, Kwai S. Chan, Stuart P. Keeler (1989) *Forming Limit Diagrams: Concepts, Methods, and Applications*, TMS
- [5] Loadman, M.J.(1998) *Analysis of Rubber and Rubber-like Polymers*, Springer
- [6] Andrew Ciesielski (1999) *An Introduction to Rubber Technology*, Elsevier (S&T)
- [7] J. R. Davis, Davis & Associates (2001) *ASM Specialty Handbook: Copper and Copper Alloys*, ASM International
- [8] S.L. Semiatin (2006) *ASM Handbook Volume 14B: Metalworking: Sheet Forming*, ASM International
- [9] Henry S. Valberg (2010) *Applied Metal Forming: Including FEM Analysis*, Cambridge University Press
- [10] A. K. Chitale, R. C. Gupta (2012) *Product Design And Manufacturing*, PHI learning Private Limited, New Delhi
- [11] George E. Dieter (2017) *Mechanical Metallurgy*, McGraw Hill

BIBLIOGRAPHY
