

DAFTAR PUSTAKA

- Akwa, J.V., Alves Da Silva Júnior, G. and Petry, A.P. (2012) ‘Discussion on the verification of the overlap ratio influence on performance coefficients of a Savonius wind rotor using computational fluid dynamics’, *Renewable Energy*, 38(1), pp. 141–149. Available at: <https://doi.org/10.1016/j.renene.2011.07.013>.
- Al-Gburi, K.A.H., Alnaimi, F.B.I., et al. (2022) ‘A comparative study review: The performance of Savonius-type rotors’, *Materials Today: Proceedings*, pp. 343–349. Available at: <https://doi.org/10.1016/j.matpr.2021.09.226>.
- Al-Gburi, K.A.H., Al-quraishi, B.A.J., et al. (2022) ‘Experimental and Simulation Investigation of Performance of Scaled Model for a Rotor of a Savonius Wind Turbine’, *Energies*, 15(23). Available at: <https://doi.org/10.3390/en15238808>.
- Alexander, A.J. and Holownia, B.P. (1978) *WIND TUNNEL TESTS ON A SAVONIUS ROTOB*, *Journal of Industrial Aerodynamics*.
- Alom, N. (2022) ‘Influence of curtain plates on the aerodynamic performance of an elliptical bladed Savonius rotor (S-rotor)’, *Energy Systems*, 13(1), pp. 265–280. Available at: <https://doi.org/10.1007/s12667-021-00428-w>.
- Alom, N. and Saha, U.K. (2019a) ‘Evolution and progress in the development of savonius wind turbine rotor blade profiles and shapes’, *Journal of Solar Energy Engineering, Transactions of the ASME*, 141(3), pp. 1–15. Available at: <https://doi.org/10.1115/1.4041848>.
- Alom, N. and Saha, U.K. (2019b) ‘Examining the aerodynamic drag and lift characteristics of a newly developed elliptical-bladed savonius rotor’, *Journal of Energy Resources Technology, Transactions of the ASME*, 141(5). Available at: <https://doi.org/10.1115/1.4041735>.
- Amiri, M., Teymourtash, A.R. and Kahrom, M. (2017) ‘Experimental and numerical investigations on the aerodynamic performance of a pivoted Savonius wind turbine’, *Proceedings of the Institution of Mechanical Engineers, Part A: Journal of Power and Energy*, 231(2), pp. 87–101.

Available at: <https://doi.org/10.1177/0957650916677428>.

- Barnes, R.H., Morozov, E. V. and Shankar, K. (2014) ‘Improved methodology for design of low wind speed specific wind turbine blades’, *Composite Structures*, 119, pp. 677–684. Available at: <https://doi.org/10.1016/j.compstruct.2014.09.034>.
- Burton, N.T., Jenkins, D. and Sharpe, E.B. (2011) *Wind Energy Handbook Wind Energy Handbook, Second Edition*. Available at: www.wiley.com.
- Chauvin, A. and Benghrib, D. (1989) ‘Drag and lift coefficients evolution of a Savonius rotor’, *Experiments in Fluids*, 8(1–2), pp. 118–120. Available at: <https://doi.org/10.1007/BF00203076>.
- Chen, J. et al. (2012) ‘Influence of phase-shift and overlap ratio on savonius wind turbine’s performance’, *Journal of Solar Energy Engineering, Transactions of the ASME*, 134(1). Available at: <https://doi.org/10.1115/1.4004980>.
- Chen, L., Chen, J. and Zhang, Z. (2018) ‘Review of the Savonius rotor’s blade profile and its performance’, *Journal of Renewable and Sustainable Energy*, 10(1). Available at: <https://doi.org/10.1063/1.5012024>.
- Chong, W.T. et al. (2012) ‘Vertical axis wind turbine with omni-directional- guide-vane for urban high-rise buildings’, *Journal of Central South University of Technology (English Edition)*, 19(3), pp. 727–732. Available at: <https://doi.org/10.1007/s11771-012-1064-8>.
- Damak, A., Driss, Z. and Abid, M.S. (2013) ‘Experimental investigation of helical Savonius rotor with a twist of 180°’, *Renewable Energy*, 52, pp. 136–142. Available at: <https://doi.org/10.1016/j.renene.2012.10.043>.
- Dorel, S.F., Mihai, G.A. and Nicusor, D. (2021) ‘Review of specific performance parameters of vertical wind turbine rotors based on the Savonius type’, *Energies*. MDPI AG. Available at: <https://doi.org/10.3390/en14071962>.
- Emmanuel Branlard (no date) *Wind Turbine Aerodynamics and Vorticity-Based Methods*. Available at: <http://www.springer.com/series/11859>.
- Faruqi, O. et al. (2017) ‘Magnus wind turbine : the effect of sandpaper surface roughness on cylinder blades’, *Acta Mechanica* [Preprint]. Available at: <https://doi.org/10.1007/s00707-017-1957-6>.

- Frank m. White (2011) *fluid mechanics*.
- Fujisawa, N; Shirai, H. (1988) ‘Experimental investigation on the unsteady flow field around a Savonius rotor at the maximum power performance’. *Journal of Wind Engineering and Industrial Aerodynamics*, pp. 195– 206.
- Fujisawa, N and Gotoh, F. (1992) *Experiments in Fluids Visualization study of the flow in and around, Experiments in Fluids*.
- Fujisawa, N. and Gotoh, F. (1992) ‘Pressure Measurements and flow Visualization Study Of a Savonius’, *Journal of Wind Engineering and Industrial Aerodynamics*, 39(6), pp. 51–60. Available at: [https://doi.org/https://doi.org/10.1016/0167-6105\(92\)90532-F](https://doi.org/https://doi.org/10.1016/0167-6105(92)90532-F).
- Gahraz, S.R.J., Lazim, T.M. and Darbandi, M. (2018) ‘Wind tunnel study of the effect zigzag tape on aerodynamics performance of a wind turbine airfoil’, *Journal of Advanced Research in Fluid Mechanics and Thermal Sciences*, 41(1), pp. 1–9.
- Grinspan, A.S., Saha, U.K. and Mahanta, P. (2004) ‘Experimental investigation of twisted bladed savonius wind turbine rotor’, *International Energy Journal*, 5(1), pp. 1–9.
- Hayashi, T., Li, Y. and Hara, Y. (2005) ‘Wind tunnel tests on a different phase three-stage Savonius rotor’, *JSME International Journal, Series B: Fluids and Thermal Engineering*, 48(1), pp. 9–16. Available at: <https://doi.org/10.1299/jsmеб.48.9>.
- Irabu, K. and Roy, J.N. (2011) ‘Study of direct force measurement and characteristics on blades of Savonius rotor at static state’, *Experimental Thermal and Fluid Science*, 35(4), pp. 653–659. Available at: <https://doi.org/10.1016/j.expthermflusci.2010.12.015>.
- Jeon, K.S. et al. (2015) ‘Effects of end plates with various shapes and sizes on helical Savonius wind turbines’, *Renewable Energy*, 79(1), pp. 167–176. Available at: <https://doi.org/10.1016/j.renene.2014.11.035>.
- Jung, Y.S. and Baeder, J. (2020) ‘Simulations for Effect of Surface Roughness on Wind Turbine Aerodynamic Performance’, *Journal of Physics: Conference Series*, 1452(1). Available at: [35](https://doi.org/10.1088/1742-35</p></div><div data-bbox=)

6596/1452/1/012055.

- Kamoji, M.A., Kedare, S.B. and Prabhu, S. V. (2009) ‘Performance tests on helical Savonius rotors’, *Renewable Energy*, 34(3), pp. 521–529. Available at: <https://doi.org/10.1016/j.renene.2008.06.002>.
- Katsigiannis, Y.A., Stavrakakis, G.S. and Pharconides, C. (2013) ‘Effect of Wind Turbine Classes on the Electricity Production of Wind Farms in Cyprus Island’, *Conference Papers in Energy*, 2013, pp. 1–6. Available at: <https://doi.org/10.1155/2013/750958>.
- Khairil, A. (2020) ‘Disertasi kinerja turbin angin savonius dengan modifikasi bentuk geometri sudu tipe bach’.
- Kurniawan, Y., Tjahjana, D.D.D.P. and Santoso, B. (2020) ‘Experimental Studies of Performance Savonius Wind Turbine with Variation Layered Multiple Blade’, *IOP Conference Series: Earth and Environmental Science*, 541(1). Available at: <https://doi.org/10.1088/1755-1315/541/1/012006>.
- Lanzafame, R. and Messina, M. (2009) ‘Design and performance of a double- pitch wind turbine with non-twisted blades’, *Renewable Energy*, 34(5), pp. 1413–1420. Available at: <https://doi.org/10.1016/j.renene.2008.09.004>.
- Lates Mihai, R.V. (2014) *CFD Analysis and Theoretical Modelling of Multiblade Small Savonius Wind Turbines*. Available at: <https://doi.org/https://link.springer.com/book/10.1007/978-3-319-09707-7>.
- Lee, J.H., Lee, Y.T. and Lim, H.C. (2016) ‘Effect of twist angle on the performance of Savonius wind turbine’, *Renewable Energy*, 89(October), pp. 231–244. Available at: <https://doi.org/10.1016/j.renene.2015.12.012>.
- Mahmoud, N.H. et al. (2012) ‘An experimental study on improvement of Savonius rotor performance’, *Alexandria Engineering Journal*, 51(1), pp. 19–25. Available at: <https://doi.org/10.1016/j.aej.2012.07.003>.
- Maldar, N.R., Ng, C.Y. and Oguz, E. (2020) ‘A review of the optimization studies for Savonius turbine considering hydrokinetic applications’, *Energy*

- Conversion and Management*, 226(September), p. 113495. Available at: <https://doi.org/10.1016/j.enconman.2020.113495>.
- Martin O. L. Hansen (2008) *Aerodynamics of Wind Turbines Second Edition*. London • Sterling, VA.
- Meri Al Absi, S. et al. (2021) ‘An experimental test of the performance enhancement of a Savonius turbine by modifying the inner surface of a blade’, in *Materials Today: Proceedings*. Elsevier Ltd, pp. 2233–2240. Available at: <https://doi.org/10.1016/j.matpr.2020.12.309>.
- Meri AR, S. and Bin Salleh, H. (2020) ‘Numerical Investigation of Savonius Rotor Elliptical and the Design Modification on a Blade Shape’, in *Lecture Notes in Mechanical Engineering*. Springer Science and Business Media Deutschland GmbH, pp. 177–185. Available at: https://doi.org/10.1007/978-981-13-8297-0_20.
- Meri, S.A. et al. (2019) ‘Performance Evaluation of Savonius Wind Turbine Based on a New Design of Blade Shape’, *International Journal of Mechanical Engineering and Technology (IJMET)*, 10(01), pp. 837–846.
- Mishra, N. et al. (2020) ‘Numerical and Experimental Investigations on a Dimpled Savonius Vertical Axis Wind Turbine’, *International Journal of Renewable Energy Research*, 10(2), pp. 646–653. Available at: <https://doi.org/10.20508/ijrer.v10i2.10566.g7935>.
- Modi, V.J. and Fernando, M.S.U.K. (1989) ‘On the performance of the savonius wind turbine’, *Journal of Solar Energy Engineering, Transactions of the ASME*, 111(1), pp. 71–81. Available at: <https://doi.org/10.1115/1.3268289>.
- Mojola, O. (1985) ‘On the aerodynamic design of the savonius windmill rotor’, *Journal of Wind Engineering and Industrial Aerodynamics*, 21, pp. 223–231.
- NAKAJIMA, M., IIO, S. and IKEDA, T. (2008) ‘Performance of Double-step Savonius Rotor for Environmentally Friendly Hydraulic Turbine’, *Journal of Fluid Science and Technology*, 3(3), pp. 410–419. Available at: <https://doi.org/10.1299/jfst.3.410>.

- Olabi, A.G. and Ali, M. (2022) ‘Renewable energy and climate change’, *Renewable and Sustainable Energy Reviews*, 158(January), p. 112111. Available at: <https://doi.org/10.1016/j.rser.2022.112111>.
- Plourde, B. *et al.* (2011) ‘An experimental investigation of a large, vertical-axis wind turbine: Effects of venting and capping’, *Wind Engineering*, 35(2), pp. 213–222. Available at: <https://doi.org/10.1260/0309-524X.35.2.213>.
- Prince, S.A., Badalamenti, C. and Georgiev, D. (2021) ‘Experimental investigation of a variable geometry vertical axis wind turbine’. Available at: <https://doi.org/10.1177/0309524X20935134>.
- Saad, A.S. *et al.* (2020) ‘Performance enhancement of twisted-bladed Savonius vertical axis wind turbines’, *Energy Conversion and Management*, 209(February), p. 112673. Available at: <https://doi.org/10.1016/j.enconman.2020.112673>.
- Saha, U.K. and Rajkumar, M.J. (2006) ‘On the performance analysis of Savonius rotor with twisted blades’, *Renewable Energy*, 31(11), pp. 1776–1788. Available at: <https://doi.org/10.1016/j.renene.2005.08.030>.
- Saha, U.K., Thotla, S. and Maity, D. (2008) ‘Optimum design configuration of Savonius rotor through wind tunnel experiments’, *Journal of Wind Engineering and Industrial Aerodynamics*, 96(8–9), pp. 1359–1375. Available at: <https://doi.org/10.1016/j.jweia.2008.03.005>.
- Sakti, G., Yuwono, T. and Widodo, W.A. (2019) ‘Experimental and numerical investigation of I-65-type cylinder effect on the savonius wind turbine performance’, *International Journal of Mechanical and Mechatronics Engineering*, 19(5), pp. 115–125.
- Salleh, H. *et al.* (2019) *Experimental Study of the Performance of the Elliptical Savonius Turbine and New Design for Blade Shape Using A 3D Printing Technology*.
- Salleh, M.B., Kamaruddin, N.M. and Mohamed-Kassim, Z. (2021) ‘The effects of a deflector on the self-starting speed and power performance of 2-bladed and 3-bladed Savonius rotors for hydrokinetic application’, *Energy for Sustainable Development*, 61, pp. 168–180. Available at:

- <https://doi.org/10.1016/j.esd.2021.02.005>.
- Satwika, N.A. *et al.* (2019) ‘Analysis of wind energy potential and wind energy development to evaluate performance of wind turbine installation in Bali, Indonesia’, *Journal of Mechanical Engineering and Sciences*, 13(1), pp. 4461–4476.
- Savonius, S.J. (1926) ‘The Wing Rotor in Theory and Practice’.
- Schlichting, H. (1936) ‘Experimentelle Untersuchungen zum Rauhigkeitsproblem (experimental investigation of the problem of surface roughness)’, *Ingenieur-Archiv*, 7(1), pp. 1–34. Available at: <https://doi.org/10.1007/BF02084166>.
- Serdar GENÇ, M., KOCA, K. and AÇIKEL, H.H. (2019) ‘Investigation of pre-stall flow control on wind turbine blade airfoil using roughness element’, *Energy*, 176, pp. 320–334. Available at: <https://doi.org/10.1016/j.energy.2019.03.179>.
- Shailendra Sao, M.P.R.M. (2017) *Analysis of NACA 4415 Blade profile For Horizontal Axis Wind Turbine Using Various Aerodynamic Characteristics*. Available at: www.erpublication.org.
- Sheldahl, R.E., Blackwell, B.F. and Feltz, L. V. (1978) ‘Wind Tunnel Performance Data for Two- and Three-Bucket Savonius Rotors.’, *J Energy*, 2(3), pp. 160–164. Available at: <https://doi.org/10.2514/3.47966>.
- Sofiaty, I., Yulihastin, E. and Putranto, M.F. (no date) *Meridional variations of sea surface temperature and wind over southern sea of Java and its surroundings*, *Journal of Physics and Its Applications*. Available at: <https://ejournal2.undip.ac.id/index.php/jpa/index>.
- Takenori ogawa (1986) *The effects of a deflecting Plate and rotor End Plates*.
- Tantia, P. *et al.* (2021) ‘Numerical analysis of savonius vertical axis wind turbine with dimpled blades’, *Lecture Notes in Mechanical Engineering*, pp. 209–223. Available at: https://doi.org/10.1007/978-981-33-4018-3_20.
- Tasneem, Z. *et al.* (2020) ‘An analytical review on the evaluation of wind resource and wind turbine for urban application: Prospect and challenges’, *Developments in the Built Environment*. Elsevier Ltd.

Available at: <https://doi.org/10.1016/j.dibe.2020.100033>.

Yang, X. *et al.* (1999) ‘Numerical analysis of unsteady compressible turbulent flows about a train passing through a tunnel’, *SAE Technical Papers* [Preprint]. Available at: <https://doi.org/10.4271/1999-01-0804>.

Zemamou, M., Aggour, M. and Toumi, A. (2017) ‘Review of savonius wind turbine design and performance’, *Energy Procedia*, 141(December), pp. 383–388. Available at: <https://doi.org/10.1016/j.egypro.2017.11.047>.

