

Design and Fabrication of Automatic Sand Separator

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Abstract: Sand is essential for any type of construction. Different types of sand are required for different constructions. For example, column, plaster, stairs. And this process takes a lot of labor and effort, so if you want to build on a large scale, the traditional methods of separating sand are not suitable for us as per the survey, single filter machine is available in the market. In our experimental setup three different quality of sand filtered in a single process. The strength of this setup is simulated in ANSYS also and by using our experimental setup we reduce labour cost and time. And increase working efficiency or working purpose upto 35%. For this operation we used three types of filter frame and three different compartments. The slider crank mechanism is used in this model.

Keywords: Stress, Reaction force, sand

REFERENCES

- [1] S. K. Subramaniam; Siti Huziamah Binti; Yusmarinta Yusop; and A.Hamidon, "Machine efficiency and Man power utilization on production lines." 8th WSEAS Int. Conf.on electronics, hardware, wireless and Optical communication, Jan 2008.
- [2] V. M. Magar, B. S. Vilas, G. K. Sajan, and D. S. Shubhas, "Design and fabrication of multistage sand Separator and filter," GRD journal for engg. Vol. 2, may 2018.
- [3] G. Kurnia, b. Yulianto, J. Jamari, and A. P. Bayuseno, "Evaluation in conceptual design of humal Powered sand sieving machine," E3S Web of conferences 125, 2019.
- [4] Vijay Talodhikar et.al , " Design And Fabrication Of Sand Separator", International Journal for Research Trends and Innovation", Volume 7, Issue 5, 202
- [5] Machine Design, Robert. L. Norton, Pearson Education Asia, 2001.
- [6] Machine Design, A CAD Approach, Andrew Dimarogonas, John Wiley, Inc, 2001
- [7] Design of machine elements by JBK Das and PL Srinivasamurthy, Sapna Book house, 2015.
- [8] Ribbon blenders: A best practices guide by Charles Ross and son company.
- [9] Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2012-13 Editions.
- [10] Standard Classification for Cost Estimate Classification System, ASTM E2516-11.
- [11] Bill of Materials. Inventory Interface. Gerald Drouillard, December 28, 2001. Retrieved June 7, 2011.
- [12] Vatroslav grubisic, fatigue failure of automobile components, fraunhofer institute of reliability, 12th oct 2004. Tokyo, pp. 01-37.
- [13] A.K.Nachimuthu, 2014 "Analysis and optimizing connecting rod for weight and cost reduction", International Journal of Research and Innovation in Engineering Technology.
- [14] Ashok G.Ambekar, mechanism and machine theory, prentice-hall india, 2007, newdelhi, pp800-805.