

## **A Mechanical Shaker for Sieving Dry Soil Samples**

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### **ABSTRACT**

The design, construction and testing of a soil dry sieving apparatus, which could be used to effectively determine the particle size distribution curves of dry soil samples is described. The design required that a means be developed to agitate soil samples placed on two stacks of sieves, each arranged in decreasing sizes. The apparatus was designed to utilize a horizontal and vertical motion of 32 mm in both directions along with a tapping action. This was obtained by incorporating an arm and follower into the design. Three soils were used to test this equipment. These results were then compared to tests performed on an existing commercial mechanical sieve shaker. The results obtained for these tests showed that the constructed shaker performed very well in comparison with the commercial shaker and was much quieter in operation and more user-friendly. The major advantage of the constructed mechanical sieve shaker is that two stacks of sieves are incorporated into the design, cutting by almost half, the normal time required for particle size analysis using the existing commercial shakers which all utilize single sieve stacks.

**Keywords:** Soil, Sieving, Machine, Shaker