

Automated Powder Dispensing System for Manufacturing Industry

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In many manufacturing industries, powders should be weighed and dispensed as a part of the routine production process. In these scenarios, workers must prepare power batches based on the material requirement manually. This manual process reduces the efficiency of overall production. Existing powder dispensing systems have issues including material and time wastage, human errors in the measurements. Since some powders are toxic to humans, works should avoid direct contact with the material. This study proposes a system to address these issues which are equipped with a screw conveyor and electronic weighing measurement. Also, the proposed system has features including automatic quantitative, Speed control. Further, Screw conveyors have an agitator to give vibration motion to the screw conveyor to ensure the Powder quickly comes to the screw conveyor. A valve is installed at the point where the powder exists, and the valve opens. Then the Powder comes out to the screw conveyor the Powder starts to dispense into the container. The load cell system collects data and measures the amount of powder that falls through the conveyer. PID unit is used to control the speed of the conveyor. The powder measuring machine is suitable for food additives, flavors and fragrances, flour, milk powder, protein powder, solid drink, sugar, monosodium glutamate, pesticides, veterinary drugs, detergents, enzymes, chemicals, and other powder (powder, super fine powder). The dispensing system is having 85% efficient 90% accurate than the conventional methods used in local manufacturing facilities.

Keywords: Powder; Screw conveyor; Dispenser; Weight measurement; Loadcell