Design and Build an Automatic Brown Sugar Mixer

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ABSTRACT

This research is research based on appropriate technology which is expected to be one of the solutions in improving the brown sugar processing process to a higher quality and can speed up brown sugar processing automatically using the help of AC motor power so that it saves time and does not require a lot of energy in the process. brown sugar production. The research method used is the R&D (research and development) method. In this study, data was taken directly from validation by mechanical experts by lecturers by assessing the plans that had been made. The machine specifications are that it uses an AC motor with a speed of 1400 rpm and a gearbox transmission system with a ratio of 1:60 as the transmission between the motor and the blade shaft. The frame material used is hollow iron measuring 4x4 cm. The AC motor power calculation results are 0.73 kW, the AC motor torque calculations are 257.41 kg.mm, the V-belt speed calculation results are 5.5 m/sec. Apart from the machine calculation results, machine validation testing was also carried out, showing that the machine design assessment was 91% with very good criteria. The results of the test of the speed of the pulley driven at the maturity level of 10% - 100% decreased by 2.8 rpm. The drive pulley speed at the rate of 10% - 100% has increased by 20.8 rpm in 170 minutes.

***Key Words* :** *Brown Sugar, Mixer, Frame design, Electric Motor*