ABSTRACT

CANDRA ADI SETYAWAN, 21419414

PULLEY ANALYSIS OF CAN CRUSHING MACHINE USING SOLIDWORKS SOFTWARE

Waste is a material that is discarded or discarded as a result of human activities or natural processes that does not have economic value. Technological development is urgently needed to handle this for optimal purposes, so a tool was created to help meet the needs of a can chopper, namely by designing a can chopper machine that will help the work to be faster and safer. This can chopper machine has dimensions of 1230 x 630 x 625 mm, with a power source produced by a 1 hp (0.746 kW) electric motor with a rotation of 1400 rpm and a gearbox. The power or energy produced by the electric motor is transmitted to the Speed Reducer (Gearbox). The purpose of this writing is to find out the design and analysis of the pulley used. In the design of this cassava slicing machine, a pulley diameter of 56 mm and 124 mm will be used which will use a rotation link received from the motor. With a belt circumference length of 680.49 mm, the actual axle distance is 1161.2 mm and the contact angle between the belt and the pulley is around 169 with a correction factor $K\theta°$ of 0.97. Pulley simulation results using Solidworks software with a torque load of 3.75 Nm on the driver pulley and 7.43 Nm on the driven pulley. From the provision of torque, the von Mises stress value on the driver pulley is 0.49 Mpa and the von Mises stress on the driven pulley is 12.70 Mpa, the maximum displacement value on the driver pulley is 0.00019 mm and the simulation results show that the maximum displacement value on the pulley is driven is 0.014 mm, and the safety factor of safety on the driver pulley is 55.66 ul with a torque of 3.75Nm and the safety factor of safety on the driven pulley is 2.17 ul with a torque of 7.43 Nm, which means this pulley is more than 1 ul.

Bibliography (1997 s/d 2022)