

ABSTRACT

Rezza Ahmad Ramdani. C21201211011. Design of a Flour Milling Machine (Disk Mill) for Household-Scale Industry with a Capacity of 180 Kg/Hour. Mechanical Engineering Study Program. Faculty of Engineering. Universitas 17 Agustus 1945 Cirebon. 2025. Supervisor I: Achmad Tohasan, ST., MT. Supervisor II: M. Luthfi Abdullah, S.Pd., M.Pd.

The background of this research is the high demand for flour made from local food commodities such as corn, rice, and cassava as alternatives to imported wheat flour. One of the main challenges for small and medium enterprises (SMEs) is the lack of affordable and efficient flour milling machines that are suitable for household-scale production. This study aims to design and develop a disk mill-type flour milling machine with a target capacity of 180 kg/hour and to evaluate its performance by testing corn with various moisture contents. The research method consists of several stages, including design planning using SolidWorks 2021, fabrication of the frame and machine components, assembly, and performance testing. The machine was designed using a Honda CX 200 gasoline engine with 6.5 HP power, a *pulley* transmission system (3":3"), and a mesh 100 sieve. The test results showed that the highest capacity achieved was 71.4 kg/hour at 10% moisture content, 48.0 kg/hour at 16% moisture content, and 38.1 kg/hour at 23% moisture content. These findings indicate that the moisture content of the material significantly affects the machine's capacity, and the actual performance is still below the target design capacity. The conclusion of this research is that the designed disk mill machine can be used to grind corn into flour, but further optimization of the *pulley* ratio, disk geometry, and material condition is needed to approach the target capacity.

Keywords: Flour milling machine, Disk mill, Flour, SMEs, Corn