

ABSTRAK

Benni Ferianda Saragih: 5223520036 Rancang Bangun Mesin Pengaduk Adonan Mie Kapasitas 10 Kg Tugas Akhir Fakultas Teknik Universitas Negeri Medan 2026.

Proses pengadukan adonan mie pada UMKM umumnya masih dilakukan secara manual sehingga kurang efisien dan membutuhkan tenaga besar. Penelitian ini bertujuan merancang dan membangun mesin pengaduk adonan mie kapasitas 10 kg untuk meningkatkan efisiensi waktu dan kualitas pencampuran. Metode yang digunakan meliputi perancangan, pembuatan, perakitan, serta pengujian fungsional mesin. Mesin menggunakan motor listrik 1 HP dengan putaran 1400 rpm yang dikombinasikan dengan gearbox rasio 1:30 sehingga menghasilkan putaran poros sekitar 46,67 rpm dengan daya efektif ± 634 Watt dan asumsi efisiensi 85%. Hasil pengujian menunjukkan mesin mampu mengaduk adonan 10 kg secara merata dalam waktu ± 12 menit dan bekerja stabil tanpa getaran berlebih. Evaluasi Voice of Customer (VoC) menunjukkan tingkat kepuasan mitra berada pada kategori tinggi, sehingga mesin dinilai layak digunakan sebagai alat bantu produksi UMKM karena mampu meningkatkan efisiensi dan kualitas adonan.

Kata kunci: mesin pengaduk, adonan mie, rancang bangun, efisiensi, UMKM.

ABSTRACT

Benni Ferianda Saragih: 5223520036 Design and Construction of a Noodle Dough Mixer Machine with a Capacity of 10 Kg Final Project, Faculty of Engineering, Universitas Negeri Medan 2026.

The noodle dough mixing process in MSMEs is generally still done manually, making it inefficient and requiring significant labor. This research aims to design and build a 10 kg capacity noodle dough mixing machine to improve time efficiency and mixing quality. The methods used include design, manufacturing, assembly, and functional testing of the machine. The machine uses a 1 HP electric motor with a rotation speed of 1400 rpm combined with a 1:30 ratio gearbox, resulting in a shaft rotation of approximately 46.67 rpm with an effective power of ± 634 Watts and an assumed efficiency of 85%. Test results show the machine is capable of mixing 10 kg of dough evenly in approximately 12 minutes and operates stably without excessive vibration. The Voice of Customer (VoC) evaluation indicates a high level of partner satisfaction, thus the machine is deemed suitable for use as a production aid for MSMEs due to its ability to improve dough efficiency and quality.

Keywords: *mixing machine, noodle dough, design, efficiency, MSMEs*

