

ABSTRAK

RANCANG BANGUN *AUTOMATIC BATCH MIXING TANK* MENGUNAKAN *OUTSEAL PLC*

(2025: xxv + 120 Halaman + 77 Gambar + 6 Tabel + 12 Daftar Pustaka)

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Sistem otomasi berperan penting dalam meningkatkan efisiensi dan konsistensi produksi industri. Salah satu penerapannya adalah sistem batch mixing untuk pencampuran bahan cair. Proyek ini bertujuan merancang sistem automatic batch mixing tank menggunakan PLC Outseal sebagai pengendali utama. Sistem dirancang untuk mengatur proses pengisian, pemanasan, pencampuran, dan pengosongan bahan secara otomatis melalui pompa, heater, sensor level, motor agitator, dan katup solenoid. Dilengkapi juga dengan antarmuka Human Machine Interface (HMI) untuk kemudahan pemantauan dan kontrol. Hasil pengujian menunjukkan sistem dapat menjalankan proses batch mixing secara otomatis sesuai logika yang ditentukan, baik dalam mode otomatis maupun manual. Sistem ini mampu meningkatkan keakuratan pencampuran serta efisiensi waktu dan tenaga kerja untuk produksi skala kecil hingga menengah.

Kata kunci: Otomasi Industri, *Programmable Logic Controller (PLC) Outseal, Human Machine Interface (HMI)*, tangki, pencampur otomatis.

ABSTRACT

DESIGN AND DEVELOPMENT

OF AUTOMATIC BATCH MIXING TANK USING OUTSEAL PLC

(2025: xxv + 120 Pages + 77 Picture + 6 Table +12 References)

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Automation systems play an important role in improving the efficiency and consistency of industrial production. One of its applications is a batch mixing system for mixing liquid materials. This project aims to design an automatic batch mixing tank system using Outseal PLC as the main controller. The system is designed to automatically regulate the filling, heating, mixing, and emptying processes of materials through pumps, heaters, level sensors, agitator motors, and solenoid valves. It is also equipped with a Human Machine Interface (HMI) for easy monitoring and control. Test results show that the system can perform the batch mixing process automatically according to the specified logic, both in automatic and manual modes. This system improves mixing accuracy and enhances time and labor efficiency for small to medium-scale production.

Keywords: *Industrial Automation, Programmable Logic Controller (PLC) Outseal, Human Machine Interface (HMI), tank, automatic mixing.*