ABSTRAK

Nama : Ahmad Sultan Ramadhan

NPM : 062230200246

Jurusan/Prodi : D-III Teknik Mesin

Judul Laporan : *Commissioning* Mesin *Rotary Grinding* Dan *Polishing* Di Laboratorium Mekanik Jurusan Teknik Mesin Politeknik Negeri Sriwijaya

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Mesin rotary grinding dan polishing merupakan salah satu peralatan laboratorium yang memiliki peran sangat penting dalam mendukung pelaksanaan praktikum metalografi di Laboratorium Mekanik, Jurusan Teknik Mesin, Politeknik Negeri Sriwijaya. Mesin ini berfungsi mempersiapkan permukaan spesimen logam sebelum dilakukan pengamatan struktur mikro melalui proses etsa. Proses persiapan ini meliputi tahap pengamplasan untuk menghilangkan ketidakteraturan permukaan dan pemolesan untuk menghasilkan permukaan yang rata, bebas goresan, serta memiliki kualitas optik yang memadai. Permukaan yang dipersiapkan dengan baik akan memberikan hasil pengamatan mikroskopis yang lebih akurat dan jelas, sehingga keberadaan mesin dalam kondisi prima menjadi suatu keharusan. Seiring penggunaan yang intensif dalam jangka panjang, mesin mengalami penurunan kinerja akibat kerusakan pada komponen vital. Kerusakan meliputi bearing yang aus, V-belt yang retak, sistem pendingin yang tidak berfungsi, serta body mesin yang kusam dan mulai mengalami korosi. Kondisi ini menyebabkan hambatan pada kegiatan praktikum dan menurunkan kualitas hasil pengujian metalografi mahasiswa. Untuk mengatasi hal tersebut, dilakukan proses commissioning, yaitu serangkaian langkah pemeriksaan, pengujian, dan verifikasi kelayakan mesin setelah dilakukan rekondisi. Tahapan ini mencakup observasi langsung, wawancara dengan teknisi laboratorium, serta pengujian teknis terhadap komponen yang telah diganti atau diperbaiki. Rekondisi meliputi penggantian bearing, V-belt, dan pompa, perbaikan sistem pendingin, serta pengecatan ulang body mesin untuk mencegah korosi lanjutan. asil pengujian menunjukkan mesin kembali beroperasi sesuai standar operasional Metaserv 2000 Twin, dengan kecepatan putaran piringan amplas 317,6 rpm dan piringan pemoles 282,6 rpm. Permukaan spesimen yang dihasilkan halus, rata, dan memenuhi kriteria pengujian metalografi.

Kata Kunci**:** Commissioning, Rotary, Polishing, Metalografi, Mesin Metaserv

ABSTRACT

Commissioning On Rotary Grinding And Polishing Machines In The Mechanical Laboratory Of The Department Of Mechanical Engineering, State Polytechnic Of Sriwijaya

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Ahmad Sultan Ramadhan
NPM.062230200246
DIPLOMA-III MECHANICAL ENGINEERING STUDY PROGRAM
MECHANICAL ENGINEERING DEPARTEMENT STATE
POLYTECHNIC OF SRIWIJAYA

The rotary grinding and polishing machine is one of the most important laboratory tools that plays a crucial role in supporting metallography practicum activities in the Mechanical Laboratory, Department of Mechanical Engineering, Politeknik Negeri Sriwijaya. This machine is used to prepare the surface of metal specimens before observing their microstructure through the etching process. The preparation process includes grinding to remove surface irregularities and polishing to produce a flat, scratch-free surface with adequate optical quality. A well-prepared surface provides more accurate and clearer microscopic observations, making it essential for the machine to be in prime condition. However, prolonged and intensive use has led to a decline in performance due to damage to vital components. These issues include worn bearings, cracked V-belts, a non-functioning cooling system, and a machine body that has become dull and corroded. Such conditions hinder practicum activities and reduce the quality of metallographic testing results for students. To address these problems, a commissioning process was carried out, involving a series of inspections, tests, and verifications to ensure the machine's readiness after reconditioning. The procedure included direct observation, interviews with laboratory technicians, and technical testing of replaced or repaired components. The reconditioning process involved replacing bearings, V-belts, and the pump, repairing the cooling system, and repainting the machine body to prevent further corrosion. The test results showed that the machine now operates according to the operational standards of the Metaserv 2000 Twin, with grinding disc rotation speed at 317.6 rpm and polishing disc rotation speed at 282.6 rpm. The specimen surfaces produced are smooth, flat, and meet metallography testing criteria.

Keyword: Commissioning, Rotary, Polishing, Metalograf, Metaserv Machine