

Perancangan Poros Utama Mesin Bubut Kayu

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Abstrak

Poros utama mesin bubut kayu merupakan salah satu komponen penting pada mesin bubut kayu. Poros utama dihubungkan dengan pencekam dan motor listrik. Tujuan dari pembuatan poros utama mesin bubut ialah untuk lebih mengoptimalkan fungsi dari mesin bubut kayu. Hasil penelitian menunjukkan Dari hasil yang diperoleh hasil: (1) Poros utama Poros utama dapat menggerakkan pencekam sesuai dengan kecepatan yang telah ditentukan mengalami kemiringan posisi; (2) Proses pembuatan poros utama mesin bubut kayu sederhana yaitu: proses pemotongan (*sawing*) - proses pembubutan (*turning*) meliputi pembubutan facing, pengeboran senter, pembubutan rata, pembubutan bertingkat, dan pembubutan chamfe dan pembuatan ulir luar secara manual dengan snei; (2) Waktu yang diperlukan dalam membuat poros utama mesin bubut kayu sederhana yaitu 137 menit atau 2 jam 17 menit.

Kata Kunci : Poros utama, Mesin Bubut Kayu

1. Pendahuluan

Kemajuan perkembangan dunia ilmu pengetahuan dan teknologi menuntut kalangan perguruan tinggi khususnya mahasiswa untuk dapat serta menciptakan dan meningkatkan penguasaan teknologi pada masyarakat terutama teknologi tepat guna. Teknologi tepat guna merupakan teknologi yang tepat sasaran untuk dapat digunakan dan dikembangkan oleh masyarakat umum. Dengan demikian teknologi tepat guna harus lebih dikembangkan lagi di kalangan pendidikan maupun masyarakat untuk menambah pengetahuan dan penguasaan. Untuk menunjang kemampuan teknologi tepat guna salah satu aplikasi teknologi tepat guna salah satu alternatifnya yaitu pembuatan mesin bubut kayu sederhana.

Aplikasi penggunaan perancangan dari sistem manual yang diubah menjadi sistem mesin melalui rangkaian motor lebih praktis dan multifungsi, digunakan pada teknologi tepat guna dan diterapkan pada proses bubut kayu. Mesin bubut kayu ini dapat dimanfaatkan untuk membubut kayu dalam jumlah besar dan dalam waktu yang singkat, khususnya kepada para pengrajin kayu yang sehari-harinya disibukkan pada proses bubut kayu secara manual.

Mesin bubut kayu ini terdiri atas berbagai komponen yang saling mendukung agar dapat bekerja dengan baik. Setiap bagiannya saling berkaitan dan mempunyai fungsi masing-masing. Beberapa komponen yang penting tersebut antara lain: rangka mesin bubut kayu, poros utama, pencekam benda, kepala lepas

(*tailstock*), dan tempat pahat (*toolpost*).

Poros utama merupakan bagian terpenting pada mesin bubut kayu berfungsi sebagai penerima daya dari motor listrik dan sebagai tempat pencekam untuk memutarakan benda saat di cekam. Selain itu fungsi poros utama tersebut sebagai tempat *pulley*, *beoring*, dan gerinda rata.

2. Kajian Pustaka

2.1 Mesin bubut

Proses bubut adalah proses pemesian untuk menghasilkan bagian-bagian mesin berbentuk silindris yang dikerjakan dengan menggunakan mesin bubut. Prinsip dasarnya dapat didefinisikan sebagai proses pemesian permukaan luar benda silindris atau bubut rata. Menurut (Widarto, 2008: 144) prinsip kerja pada proses bubut adalah proses penghilangan bagian dari benda kerja untuk memperoleh bentuk tertentu. Pengurangan volume benda kerja dengan cara penyayatan menggunakan pahat bermata potong tunggal (*with a single-point cutting tool*).

Penggunaan mesin bubut (*turning*) pada proses pembuatan poros utama pada mesin bubut kayu sederhana yaitu: pembubutan muka rata kanan (*facing*), membuat lubang center, bubut rata (lurus), bubut bertingkat, dan pengurangan panjang. Proses pemesian selain proses bubut juga dapat digunakan untuk pengerjaan – pengerjaan lain seperti, *cowtur turning*, *form turning*, *champer*, *cutoff*, *boring*, *drilling*, *knurling* (pembuatan kartel). Proses pengerjaan

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