**Tabel 1**. Komponen Yang Dibuat

|  |  |
| --- | --- |
| **Nama Komponen** | **Komponen Yang Dibuat** |
| Rangka |  |
| Poros Dan Bantalan Piringan |  |
| Cover Rangka Mesin Poles |  |

**Tabel 2**. Komponen Yang Dibeli

|  |  |
| --- | --- |
| **Nama Komponen** | **Komponen Yang Dibeli** |
| Bearing |  |
| Belt |  |
| Pulley ganda |  |
| Pulley tunggal 7 inc |  |
| Pulley tunggal 5 inc |  |
| Piringan nilon |  |
| Motor listrik |  |
| Dimmer |  |
| Saklar on/off |  |

**Tabel 3**. Perhitungan Waktu Pembuatan Mesin Poles

|  |  |  |  |
| --- | --- | --- | --- |
| No | Komponen | Proses Manufaktur | Waktu Pengerjaan (Menit) |
| 1 | Rangka | Membaca gambar/desain | 15 |
| Mempersiapkan alat | 10 |
| Proses pengukuran benda | 80 |
| Proses pemotongan benda | 45 |
| Proses pengelasan | 60 |
| Proses pengeboran rangka | 20 |
| Proses pemolesan (finishing) | 20 |
| Lost time | 45 |
| **Total Waktu Pengerjaan** | **295** |
| 2 | Poros, Bantalan, Piringan | Membaca gambar/desain | 10 |
| Mempersiapkan alat | 10 |
| Proses pengukuran benda | 15 |
| Proses pemotongan piringan | 20 |
| Proses pembubutan | 200 |
| Proses pengelasan | 60 |
| Proses miling | 80 |
| Proses pemolesan (finishing) | 20 |
| Lost time | 45 |
| **Total Waktu Pengerjaan** | **460** |
| 3 | Cover/Penutup Mesin | Membaca gambar/desain | 10 |
| Mempersiapkan alat | 10 |
| Proses pengukuran benda | 25 |
| Proses pemotongan plat | 50 |
| Proses pengelasan plat cover | 30 |
| Proses pengeboran plat cover | 10 |
| Proses pemolesan (finishing) | 15 |
| Lost time | 45 |
| **Total Waktu Pengerjaan** | **195** |

**Tabel 4**. Assemby motor

|  |  |  |
| --- | --- | --- |
| *Total time* | *Min. Part* | *Items name* |
| 1.85 | 1 | Motor |
| 5.21 | 0 | Ring baut pengunci motor |
| 10.95 | 1 | Baut pengunci motor |
|  | - | Membalikkan posisi motor |
| 32.87 | 1 | Mur pengunci motor a |
|  | - | Memutar 90° posisi motor |
| 3.23 | 1 | Pulley ganda |
| 8.83 | 1 | Baut penahan pulley |

**Tabel 5**. Assembly cover, dimmer dan saklar

|  |  |  |
| --- | --- | --- |
| *Total time* | *Min. Part* | *Items name* |
| 7.4 | 1 | Cover atas |
|  | - | Membalikkan posisi cover |
| 37.59 | 1 | Dimmer |
| 20.28 | 1 | Saklar on/off |
|  | - | Putar cover ke posisi awal |
| 3.57 | 0 | Handle dimmer |

**Tabel 6**. Assembly rangka akhir, gabungan dari assembly 1 dan 2

|  |  |  |
| --- | --- | --- |
| *Total time* | *Min. Part* | *Items name* |
| 10.3 | 1 | Rangka |
| 15.7 | 1 | Bearing |
| 11.2 | 0 | Ring baut pengunci bearing |
| 36.7 | 1 | Baut pengunci bearing |
| 12.1 | 0 | Ring mur pengunci bearing |
| 72.5 | 1 | Mur pengunci bearing |
| 5.8 | 1 | Poros a |
| 7.64 | 1 | Pulley a |
| 4.3 | 1 | V belt a |
| 4.49 | 1 | Poros b |
| 5.3 | 1 | Pulley b |
| 4.63 | 1 | V belt b |
| 13.39 | - | Menggabungkan sub assembly 2 ke rakitan akhir |
| 55 | 1 | Baut pengunci cover |
| 5.28 | 0 | Piringan |
| 103.68 | 1 | Skrup pengunci piringan |
| 14.51 | - | Menggabungkan sub assembly 1 ke rakitan akhir |
| 6.14 | - | V belt a |
| 7.22 | - | V belt b |
| 28.81 | 1 | Mur pengunci motor |
| 79.65 | - | Ajusting belt pulley a |
| 76.93 | - | Ajusting belt pulley b |
| 712.95 | 21 | Design efficiency |
| Tm | Nm |

**Tabel 7**. Perbandingan waktu teoritis dan aktual

|  |  |  |
| --- | --- | --- |
| Kriteria | Analisa teoritis | Analisa aktual |
| Jumlah part | 21 | 21 |
| Selisih jumlah part aktual dengan jumlah part minimum teoritis (nm) | 21 | 21 |
| Total waktu perakitan (tm) | 0.1069 | 712.95 |
| Design efficiency (e) | 0.1059 (10.59%) | 0.0884 (8,84%) |

**Tabel 8**. Proses polishing dengan kertas ameplas kekasaran 320

|  |  |  |  |
| --- | --- | --- | --- |
| sampel | rpm | waktu pemolesan | Ra |
| 1 | 804 rpm | 1 menit | 1,524 µm |
| 2 | 804 rpm | 2 menit | 0,803 µm |
| 3 | 804 rpm | 3 menit | 0,468 µm |

**Tabel 9**. Proses polishing dengan kertas ampelas kekasaran 1000

|  |  |  |  |
| --- | --- | --- | --- |
| sampel | rpm | waktu pemolesan | Ra |
| 1 | 1004 | 1 menit | 0,347 µm |
| 2 | 1004 | 2 menit | 0,306 µm |
| 3 | 1004 | 3 menit | 0,192 µm |

**Tabel 10**. Anggaran biaya bahan baku.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Bahan | Harga satuan (Rp) | Panjang (MM) | Jumlah | Harga (Rp) |
|
| 1 | Besi hollow galvanis | 130.000 | 6000 | 3 | 390.000 |
| 2 | Besi ST 37 | 100.000 | 3000 | 2 | 200.000 |
| 3 | Besi astm A36 | 50.000 | - | 2 | 100.000 |
| 4 | Plat Stainles Steel 0,8 mm | 100.000 | 1200 x 800 | 2 | 200.000 |
| 5 | Nilon | 65.000 | 200x200x10 | 2 | 170.000 |
| 6 | Motor | 200.000 | - | 1 | 200.000 |
| 7 | Puli ganda | 30.000 | - | 1 | 30.000 |
| 8 | Puli | 50.000 | - | 2 | 100.000 |
| 9 | Bearing | 30.000 | - | 4 | 120.000 |
| 10 | Belt | 25.000 | - | 3 | 75.000 |
| **Total** | | | | | 1.855.000 |

**Tabel 11**. Anggaran Biaya perlengkapan

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Bahan | Harga satuan  (Rp) | Jumlah | Harga  (Rp) |
|
| 1 | Elektroda | 100.000 | 1 | 100.000 |
| 2 | Baut, ring, mur 19mm | 2.000 | 8 | 16.000 |
| 3 | Baut, ring, mur12mm | 1.500 | 4 | 6.000 |
| 4 | Baut skrup 8 mm | 100 | 14 | 1.400 |
| 5 | Baut skrup | 200 | 8 | 1.600 |
| 6 | Pisau gerinda potong | 6.000 | 3 | 18.000 |
| 7 | Pisau gerinda ampelas | 6.000 | 1 | 6.000 |
| 8 | Cat | 15.000 | 2 | 30.000 |
| 9 | Kertas ampelas | 4.000 | 4 | 16.000 |
| 10 | Kabel | 5.000 | 2 | 10.000 |
| 11 | Saklar on/off | 5.000 | 1 | 5.000 |
| 12 | Dimmer | 45.000 | 1 | 45.000 |
| **Total** | | | | 255.000 |

**Tabel 12**. Biaya alat listrik

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Alat | Watt | Lama pemakaian (jam)/hari | Total (watt) | Kwh | 1 kwh (Rp) | Biaya/hari | Biaya/bulan |
|
| Mesin bubut | 550 | 4 | 2.200 | 2,2 | 1.500 | 3.300 | 99.000 |
| Mesin las | 450 | 4 | 1.800 | 1,8 | 1.500 | 2.700 | 81.000 |
| Mesin milling | 550 | 4 | 2.200 | 2,2 | 1.500 | 3.300 | 99.000 |
| Gerinda tangan | 580 | 5 | 2.900 | 2,9 | 1.500 | 4.350 | 130.500 |

**Tabel 13**. Harga pokok penjualan (HPP)

|  |  |
| --- | --- |
| **Biaya Produksi** | **Harga Pokok Produksi** |
| 1. Biaya Bahan Baku | Rp 1.885.000,00 |
| 2. Biaya Perlengkapan | Rp 255.000,00 |
| **Total Harga Pokok Produksi** | **Rp 2.140.000,00** |
|  |  |
| **Beban Operasional** |  |
| 1. Gaji Karyawan | Rp 231.000,00 |
| 2.Listrik | Rp 13.650 |
| 3.Transport | Rp 20.000 |
| **Total Beban Operasional** | **Rp 264.650,00** |
|  |  |
| **Harga Pokok Penjualan** | **Rp 2.404.650,00** |
| **Harga Jual** |  |
| Keuntungan (%) | 30% |
| **Total Harga Penjualan** | **Rp 3.126.045,00** |