LAMPIRAN 1

LAMPIRAN 1

Bill of Material (BOM)

No	Nama Komponen	No. ID	Spesifikasi	Satuan	Harga per satuan	Jumlah pemakaian per satuan			Harga komponen
						Panjang (mm)	Berat (kg)	Jumlah	
A	***Sub Assy* Rangka**								
1	Rangka atas 1	A1	Besi *hollow* 35 mm x 35 mm x 1,3 mm	Batang	Rp 120.000	425		5	Rp 42.500
2	Rangka atas 2	A2	Besi *hollow* 35 mm x 35 mm x 1,3 mm	Batang	Rp 120.000	305		2	Rp 12.200
3	Rangka tengah 1	A3	Besi *hollow* 35 mm x 35 mm x 1,3 mm	Batang	Rp 120.000	355		4	Rp 28.400
4	Rangka tengah 2	A4	Besi *hollow* 35 mm x 35 mm x 1,3 mm	Batang	Rp 120.000	270		2	Rp 10.800
5	Rangka kaki 1	A5	Besi *hollow* 35 mm x 35 mm x 1,3 mm	Batang	Rp 120.000	860		4	Rp 68.800
6	Rangka kaki 2	A6	Besi *hollow* 35 mm x 35 mm x 1,3 mm	Batang	Rp 120.000	705		2	Rp 28.200
7	Rangka L 2	A7	Besi siku 35 mm x 35 mm x 1,3 mm	Batang	Rp 80.000	355		2	Rp 9.467
8	Rangka L 2	A8	Besi siku 35 mm x 35 mm x 1,3 mm	Batang	Rp 80.000	355		2	Rp 9.467
9	Rangka dudukan bearing	A9	Besi plat 425 mm x 95 mm x 5 mm	Berat	Rp 14.000		2,5	2	Rp 28.000
10	*Cover* 1	A10	Galvalum	Luas	Rp 40.000	576000		2	Rp 51.200
11	*Cover* 2	A11	Galvalum	Luas	Rp 40.000	340000		1	Rp 15.111
12	*Cover* 3	A12	Galvalum	Luas	Rp 40.000	274125		1	Rp 12.183
13	*Cover* 4	A13	Galvalum	Luas	Rp 40.000	65875		1	Rp 2.928
14	*Cover* 5	A14	Galvalum	Luas	Rp 40.000	124950		1	Rp 5.553
15	*Cover* 6	A15	Galvalum	Luas	Rp 40.000	180625		1	Rp 8.028
	Jumlah harga								Rp 332.837
B	***Sub Assy* Transmisi**								
16	Motor penggerak	B1	Arus AC 1 *HP* 1 *Phase* 1400 rpm	Buah	Rp 1.200.000			1	Rp 1.200.000
17	Puli Ø 4 inchi Ø poros 19 mm	B2	Aluminium	Buah	Rp 29.500			1	Rp 29.500
18	Puli Ø 8 inchi Ø poros 20 mm	B3	Aluminium	Buah	Rp 83.500			1	Rp 83.500
19	Sabuk V tipe A no. 50	B4	Tipe A1 no. 50	Buah	Rp 30.000			1	Rp 30.000
20	Poros Ø 20 mm	B5	S45C	Panjang	Rp 350.000	325		1	Rp 18.958
21	*Bearing* UCF	B6	Poros Ø 20 mm	Buah	Rp 58.000			2	Rp 116.000
22	Pasak	B7	*Mild steel* 30 mm x 5 mm x 5 mm	Buah	Rp 5.000			1	Rp 5.000
	Jumlah harga								Rp 1.482.958

C	***Sub Assy* Tabung Pemutar**									
23	Tabung berlubang	C1	Aluminium 1100	Luas	Rp	287.000	316800		1	Rp 45.461
24	Alas tabung	C2	Aluminium 1100	Luas	Rp	287.000	78400		1	Rp 11.250
25	Rangka diameter	C3	*Stainless steel* 304	Batang	Rp	221.000	880		3	Rp 97.240
26	Rangka tinggi	C4	*Stainless steel* 304	Batang	Rp	221.000	400		4	Rp 58.933
27	Rangka alas 1	C5	*Stainless steel* 304	Batang	Rp	221.000	280		2	Rp 20.627
28	Rangka alas 2	C6	*Stainless steel* 304	Batang	Rp	221.000	120		4	Rp 17.680
29	Rangka penopang alas	C7	*Stainless steel* 304	Batang	Rp	221.000	130		4	Rp 19.153
	Jumlah harga									Rp 270.345
D	***Sub Assy* Tabung Penampung**									
29	Tabung	D1	Aluminium 1100	Luas	Rp	287.000	540000		1	Rp 77.490
30	Tutup	D2	Aluminium 1100	Luas	Rp	287.000	182636		1	Rp 26.208
31	Pegangan	D3	Aluminium 1100	Luas	Rp	287.000	12100		1	Rp 1.736
32	Alas	D4	Aluminium 1100	Luas	Rp	287.000	180625		1	Rp 25.920
33	Saluran saripati	D5	Aluminium 1100	Luas	Rp	287.000	40000		1	Rp 5.740
34	Penutup poros	D6	Aluminium 1100	Luas	Rp	287.000	4500		1	Rp 646
	Jumlah harga									Rp 137.740
E	**Lain - lain**									
	Amplas 100			Buah	Rp	5.000			3	Rp 15.000
	Cat			Kaleng	Rp	67.500			1	Rp 67.500
	Dempul			Buah	Rp	16.000			1	Rp 16.000
	Elektroda		RD Ø 2 mm	Buah	Rp	250			33	Rp 8.250
	Elektroda *stainless steel*		Ø 2 mm	Buah	Rp	4.500			23	Rp 103.500
	Gerinda amplas			Buah	Rp	8.000			1	Rp 8.000
	Gerinda poles			Buah	Rp	5.000			2	Rp 10.000
	Gerinda potong			Buah	Rp	2.500			3	Rp 7.500
	Kabel			Panjang	Rp	12.000			1	Rp 12.000
	Kaki karet		Kotak 35 mm x 35 mm	Buah	Rp	1.600			6	Rp 9.600
	Kuas		1 inchi	Buah	Rp	3.000			2	Rp 6.000
	Lakban aluminium			Buah	Rp	22.000			1	Rp 22.000
	Lem *plastic steel*			Buah	Rp	15.000			1	Rp 15.000
	Mur dan baut		M8	Buah	Rp	900			12	Rp 10.800
	Mur dan baut *stainless steel*		M6	Buah	Rp	1.800			8	Rp 14.400
	Paku rivet		Ø 4 mm	Box	Rp	27.000			1	Rp 27.000
	Sekrup			Buah	Rp	480			26	Rp 12.480
	Thinner			Botol	Rp	10.000			1	Rp 10.000
	Tombol *switch on off*			Buah	Rp	25.000			1	Rp 25.000
	Jumlah harga									Rp 400.030
	Jumlah harga total									**Rp 2.623.910**

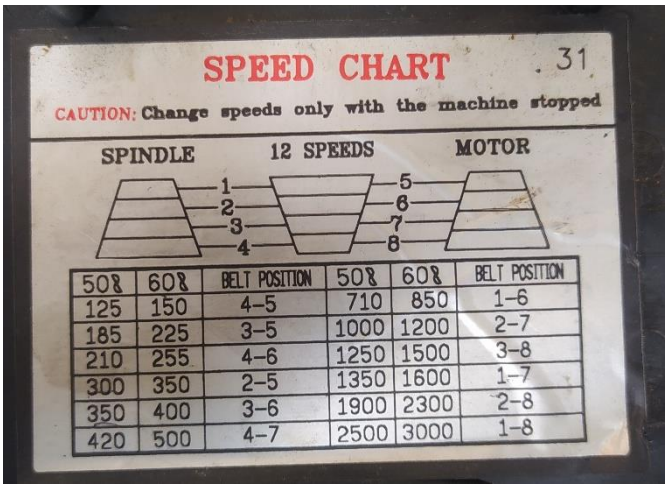
LAMPIRAN 2

LAMPIRAN 2

TABEL DATA MATERIAL, *CUTTING SPEED*, DAN SPESIFIKASI KECEPATAN SPINDEL MESIN GURDI

Tabel 2A. Tabel data material dan *cutting speed* (Widarto et. al. 2008)

MATERIAL	CUTTING SPEEDS i. (METERS/MINUTE) MPM	(FEET/MINUTE) FPM	POINT ANGLE	LIP CLEARANCE	COOLANTS
Aluminum And Alloys	61.00 - 91.50	200 - 300	90 - 130 deg	12 - 15 deg	Kerosene/Kerosene & Lard Oil/ Soluble Oil
Armor Plate	12.20 - 18.25	40 - 50	135 - 140 deg	6 - 9 deg	Light Machine Oil
Brass	61.00 - 91.50	200 - 300	118 - 118 deg	12 - 15 deg	Dry/ Soluble Oil/Kerosene/Lard Oil
Bronze	61.00 - 91.50	200 - 300	110 - 118 deg	12 - 15 deg	Dry/ Soluble Oil/Mineral Oil/Lard Oil
Bronze, High Tensile	21.35 - 45.75	70 - 150	100 - 110 deg	12 - 15 deg	Dry/ Soluble Oil/Mineral Oil/Lard Oil
Cast Iron, Soft	30.50 - 45.75	100 - 150	90 - 100 deg	12 - 15 deg	Air Jet Dry/ Soluble Oil
Cast Iron, Medium	21.35 - 30.50	70 - 100	100 - 110 deg	12 - 15 deg	Air Jet Dry/ Soluble Oil
Cast Iron, Hard	21.35 - 30.50	70 - 100	100 - 118 deg	8 - 12 deg	Air Jet Dry/ Soluble Oil
Cast Iron, Chilled	9.15 - 12.20	30 - 40	118 - 135 deg	5 - 9 deg	Air Jet Dry/ Soluble Oil
Copper	61.00 - 91.50	200 - 300	100 - 118 deg	12 - 15 deg	Air Jet Dry/ Soluble Oil
Copper Graphite Alloy (Carbon Drills)	18.30 - 21.35	60 - 70	**_**	**_**	Soluble Oil/Dry/Mineral Oil/Kerosene
Glass (Carbon Drills)	6.10 - 9.15	20 - 30	**_**	**_**	Soluble Oil/Dry/Mineral Oil/Kerosene
Iron, Malleable	15.25 - 27.45	50 - 90	90 - 100 deg	12 - 15 deg	Light Machine Oil
Magnesium And Alloys	76.25 - 122.0	250 - 400	70 - 118 deg	12 - 15 deg	Soluble Oil
Monel Nickel	4.15 - 15.28	30 - 50	118 - 125 deg	10 - 12 deg	Compressed Air/Mineral Oil
Nickel Alloys	12.20 - 18.30	40 - 60	135 - 140 deg	5 - 7 deg	Lard Oil/Soluble Oil
Plastic, Hot Set	30.50 - 91.50	100 - 300	60 - 90 deg	10 - 12 deg	Lard Oil/Soluble Oil
Plastic, Cold Set	30.50 - 91.50	100 - 300	118 - 135 deg	12 - 20 deg	Soap Solution
Steel, Low Carbon, 0.2-0.3ct	24.40 - 33.55	80 - 110	110 - 118 deg	7 - 9 deg	Soap Solution
Steel, Medium Carbon 0.4-0.5c	21.35 - 24.40	70 - 80	118 - 125 deg	7 - 9 deg	Soluble Oil/Mineral Oil/Sulfur Oil/Lard Oil
Steel (High Carbon 1.2c)	15.25 - 18.30	50 - 60	118 - 145 deg	7 - 9 deg	Soluble Oil/Mineral Oil/Sulfur Oil/Lard Oil
Steel, Forged	15.25 - 18.30	50 - 60	118 - 145 deg	7 - 12 deg	Soluble Oil/Mineral Oil/Sulfur Oil/Lard Oil
Steel, Alloy	15.25 - 21.35	50 - 70	118 - 125 deg	10 - 12 deg	Mineral Lard Oil
Steel, Alloy 300 To 400 Brinnel	6.10 - 9.15	20 - 30	130 - 140 deg	7 - 10 deg	Soluble Oil
Steel, Stainless, Free Machining	9.15 - 24.40	30 - 80	110 - 118 deg	8 - 12 deg	Soluble Oil
Steel, Stainless, Hard	4.57 - 15.25	15 - 50	118 - 135 deg	6 - 8 deg	Soluble Oil
Steel, Manganese	3.66 - 4.57	12 - 15	140 - 150 deg	7 - 10 deg	Soluble Oil
Stone (Carbide Drills)	7.63 - 9.15	25 - 30	**_**	**_**	Water Solution
Wood	91.50 - 122.2	300 - 400	60 - 70 deg	10 - 15 deg	Dry



Gambar 2A. Spesifikasi kecepatan spindel mesin gurdi

LAMPIRAN 3

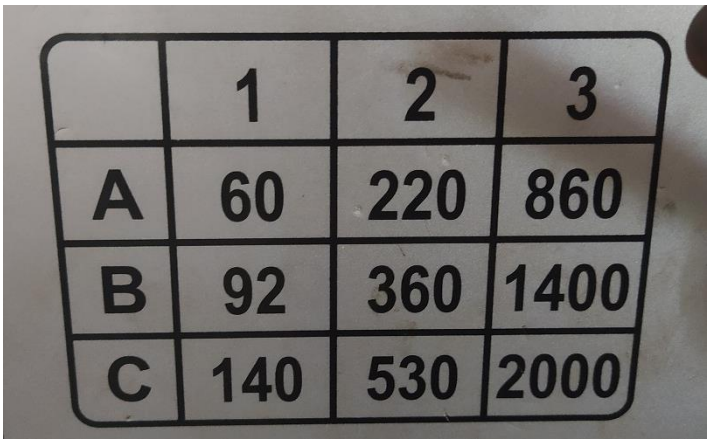
LAMPIRAN 3

TABEL DATA MATERIAL, *CUTTING SPEED, FEEDING,* DAN SPESIFIKASI KECEPATAN SPINDEL MESIN BUBUT

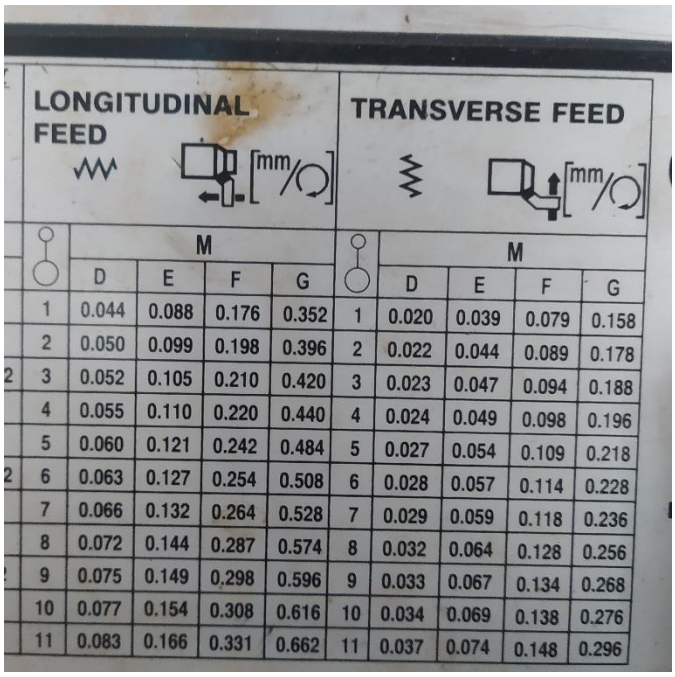
Tabel 3A. Tabel data material dan *cutting speed* (Widarto et. al. 2008)

Material	Teg. Tarik (kg/mm2)	CS (m/mnt)
Plain carbon steel		
ST37 / MS	37	32
1030 / S30C	48	32
1035 / S35C	52	25
1040 / S40C	55	25
1045 / S45C / EMS45 / 1730	58	25
1050 / S50C / ST60	62	25
1055 / S55C	66	25
Alloy Steel (JIS Grade)		
SNC2, 3, 21	95	18
SNC22	100	13
SNCM1, 2, 22	90	18
SNCM7, 8, 23, 25	100	13
SCr3, 4, 21, 22	90	18
SCr5	100	13
SCM2, 3, 21, 22	90	18
SCM4, 5, 23	100	13
Tool Steel (AISI Grade)		
W Series	70	18
O Series	135	5
D Series	140	5
A Series	140	5
H Series	140	5
L Series	100	13
P Series	100	13
S Series	130	5
HSS T Series	150	5
HSS M Series	140	5

Material	Teg. Tarik (kg/mm2)	CS (m/mnt)
Spring Steel (JIS Grade)		
SUP4, 6, 7, 9, 10, 11	125	13
SUS 302, 304, 316 WPA	170	5
SUS 302,304, WPB	210	5
SUS 631J1 WPC	200	5
Stainless Steel		10-25
304, 304L, 316, 316L	70	18
410, 416	77	18
420, 420F	84	18
440C, 440F	91	18
Copper		70
Lead Bronze		50-70
Phospor Bronze		40-50
Pure Aluminum		200-300
Aluminum Alloy		70-120
Cast Iron		
GG20		25
GG25		18
GG30,35,40		18
GG45,50		13
GG55,60		5



Gambar 3A. Spesifikasi kecepatan spindel mesin bubut



LONGITUDINAL FEED [mm/○]

	M			
	D	E	F	G
1	0.044	0.088	0.176	0.352
2	0.050	0.099	0.198	0.396
3	0.052	0.105	0.210	0.420
4	0.055	0.110	0.220	0.440
5	0.060	0.121	0.242	0.484
6	0.063	0.127	0.254	0.508
7	0.066	0.132	0.264	0.528
8	0.072	0.144	0.287	0.574
9	0.075	0.149	0.298	0.596
10	0.077	0.154	0.308	0.616
11	0.083	0.166	0.331	0.662

TRANSVERSE FEED [mm/○]

	M			
	D	E	F	G
1	0.020	0.039	0.079	0.158
2	0.022	0.044	0.089	0.178
3	0.023	0.047	0.094	0.188
4	0.024	0.049	0.098	0.196
5	0.027	0.054	0.109	0.218
6	0.028	0.057	0.114	0.228
7	0.029	0.059	0.118	0.236
8	0.032	0.064	0.128	0.256
9	0.033	0.067	0.134	0.268
10	0.034	0.069	0.138	0.276
11	0.037	0.074	0.148	0.296

Gambar 3B. Tabel *feeding* mesin bubut

LAMPIRAN 4

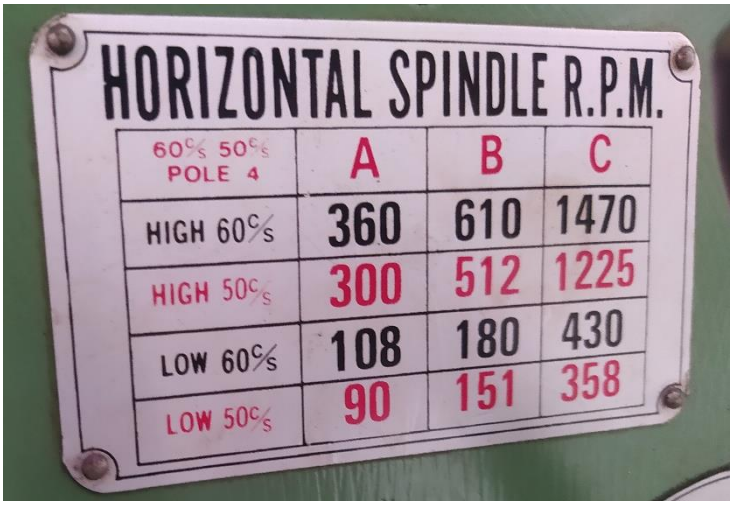
LAMPIRAN 4

TABEL DATA MATERIAL, *CUTTING SPEED*, *FEEDING*, DAN SPESIFIKASI KECEPATAN SPINDEL MESIN FRAIS

Tabel 4A. Tabel data material dan *cutting speed* (Widarto et. al. 2008)

Material	Teg. Tarik (kg/mm2)	CS (m/mnt)
Plain carbon steel		
ST37 / MS	37	32
1030 / S30C	48	32
1035 / S35C	52	25
1040 / S40C	55	25
1045 / S45C / EMS45 / 1730	58	25
1050 / S50C / ST60	62	25
1055 / S55C	66	25
Alloy Steel (JIS Grade)		
SNC2, 3, 21	95	18
SNC22	100	13
SNCM1, 2, 22	90	18
SNCM7, 8, 23, 25	100	13
SCr3, 4, 21, 22	90	18
SCr5	100	13
SCM2, 3, 21, 22	90	18
SCM4, 5, 23	100	13
Tool Steel (AISI Grade)		
W Series	70	18
O Series	135	5
D Series	140	5
A Series	140	5
H Series	140	5
L Series	100	13
P Series	100	13
S Series	130	5
HSS T Series	150	5
HSS M Series	140	5

Material	Teg. Tarik (kg/mm2)	CS (m/mnt)
Spring Steel (JIS Grade)		
SUP4, 6, 7, 9, 10, 11	125	13
SUS 302, 304, 316 WPA	170	5
SUS 302, 304, WPB	210	5
SUS 631J1 WPC	200	5
Stainless Steel		10-25
304, 304L, 316, 316L	70	18
410, 416	77	18
420, 420F	84	18
440C, 440F	91	18
Copper		70
Lead Bronze		50-70
Phospor Bronze		40-50
Pure Aluminum		200-300
Aluminum Alloy		70-120
Cast Iron		
GG20		25
GG25		18
GG30, 35, 40		18
GG45, 50		13
GG55, 60		5



Gambar 4A. Spesifikasi kecepatan spindel mesin frais

TYPE OF CUTTER	ALUMINUM		BRONZE		CAST IRON		FREE MACHINING STEEL		ALLOY STEEL	
	HSS	CAR BIDE	HSS	CAR BIDE	HSS	CAR BIDE	HSS	CAR BIDE	HSS	CAR BIDE
FACE MILLS	.007 to .022	.007 to .020	.005 to .014	.004 to .012	.004 to .016	.006 to .020	.003 to .012	.004 to .016	.002 to .008	.003 to .014
HELICAL MILLS	.006 to .018	.006 to .016	.003 to .011	.004 to .010	.004 to .018	.002 to .018	.002 to .010	.003 to .013	.002 to .007	.003 to .012
SIDE CUTTING MILLS	.004 to .013	.004 to .012	.003 to .008	.003 to .007	.002 to .009	.003 to .012	.002 to .007	.003 to .009	.001 to .005	.002 to .008
END MILLS	.003 to .011	.003 to .010	.003 to .007	.002 to .006	.002 to .008	.003 to .010	.001 to .006	.002 to .008	.001 to .004	.002 to .007
FORM RELIEVED CUTTERS	.002 to .007	.002 to .006	.001 to .004	.001 to .004	.002 to .005	.002 to .006	.001 to .004	.002 to .005	.001 to .003	.001 to .004
CIRCULAR SAWS	.002 to .005	.002 to .005	.001 to .003	.001 to .003	.001 to .004	.002 to .006	.001 to .003	.001 to .004	.005 to .002	.001 to .004

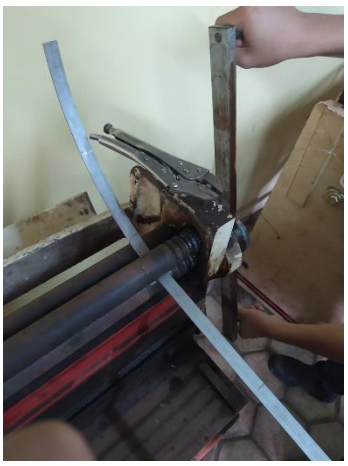
Gambar 4B. Tabel *feeding* mesin bubut

LAMPIRAN 5

LAMPIRAN 5

DOKUMENTASI PROSES PRODUKSI




LAMPIRAN 6

LAMPIRAN 6

DOKUMENTASI UJI HASIL

Gambar 6A. Kadar air proses penyaringan ampas tahu secara manual

Gambar 6A. Kadar air proses penyaringan ampas tahu menggunakan mesin