

LAMPIRAN 1
BIODATA PENULIS

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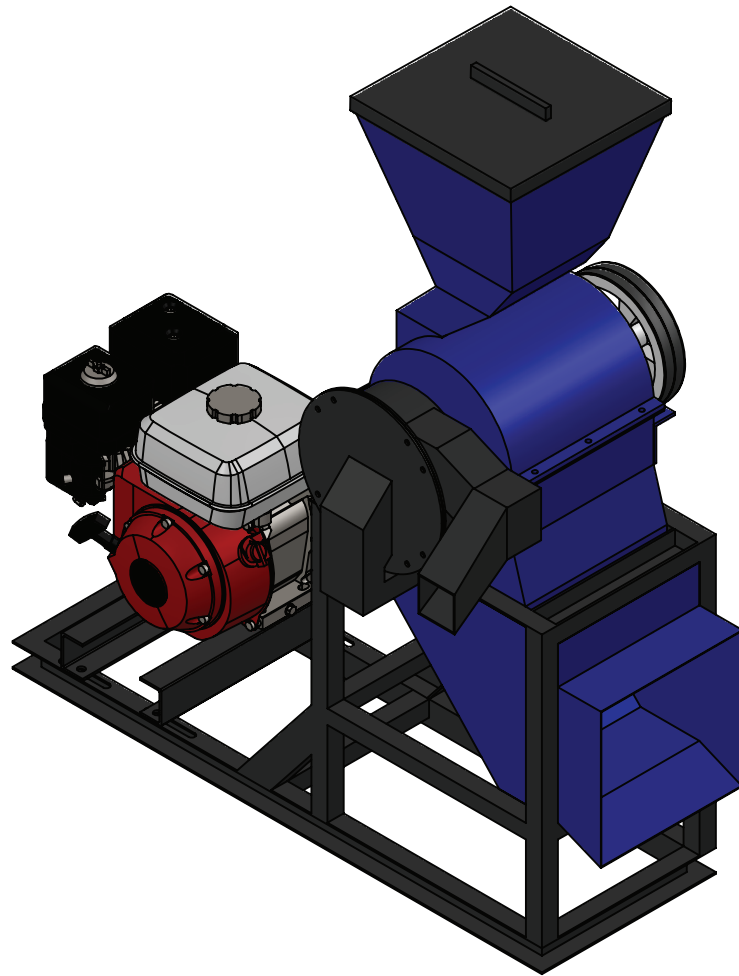
Nama : Noval Fathurahman
Tempat, tanggal lahir : Cilacap, 17 September 2002
NPM : 210203087
Jurusan : Teknik Mesin
E-mail : Bombiart356@gmail.com
Alamat : Jl. Dukuh RT002/ RW004, Maoslor, Kec. Maos,
Kab.Cilacap, Jawa Tengah
Telephone/HP : 087863981147
Hobi : Enduro and Adventure Trail
Moto hidup : “ don’t belive anyone”

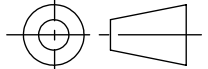



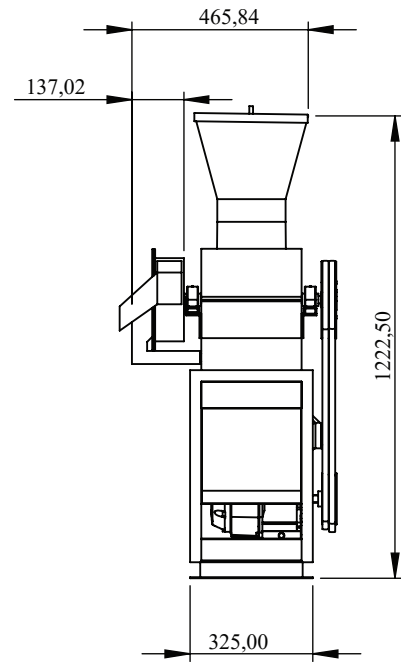
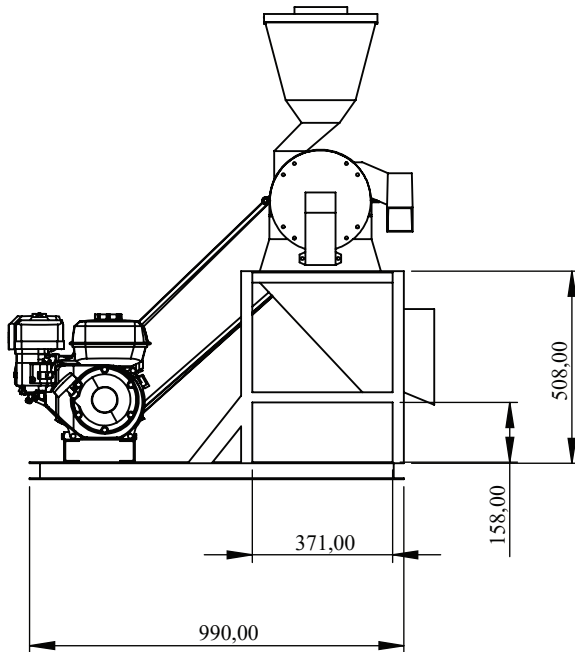
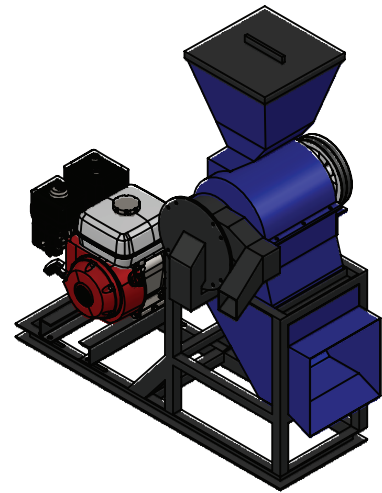
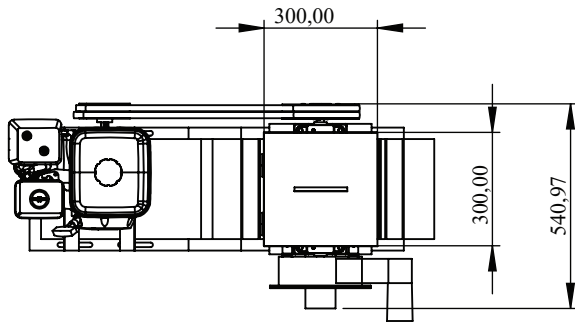
Riwayat Pendidikan

Jenjang	Nama Institusi	Jurusan	Tahun
SD	SD Negeri 2 Moaslor	-	2008 – 2014
SMP	SMP Negeri 2 Maoc	-	2014 - 2017
Boarding School	Darussalam Gontor 6	-	2017-2018
SMA	SMA Negeri 1 Maos	MIPA	2018-2020
Perguruan Tinggi	Politeknik Negeri Cilacap	Teknik Mesin	2021

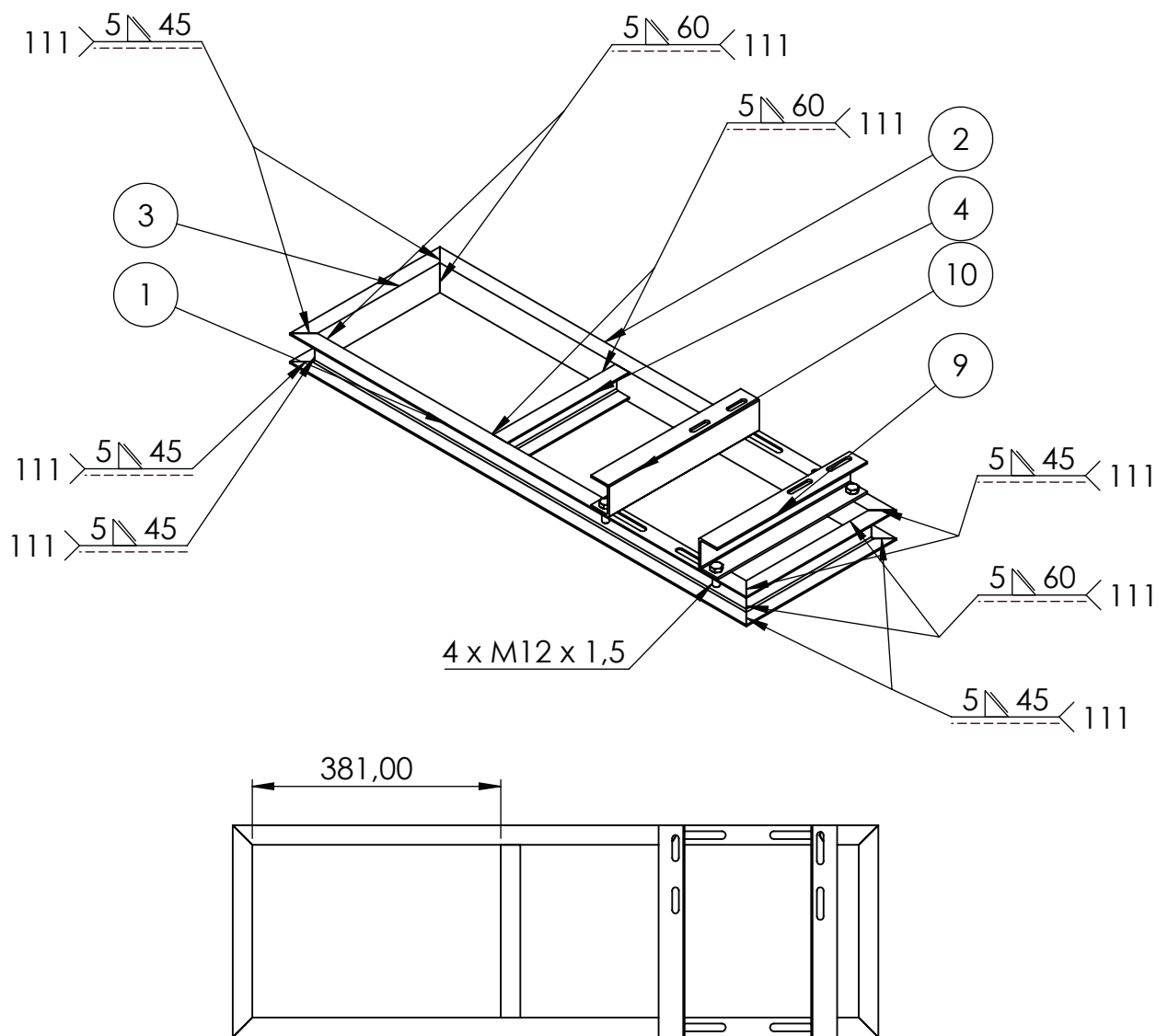
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DETAIL DRAWING



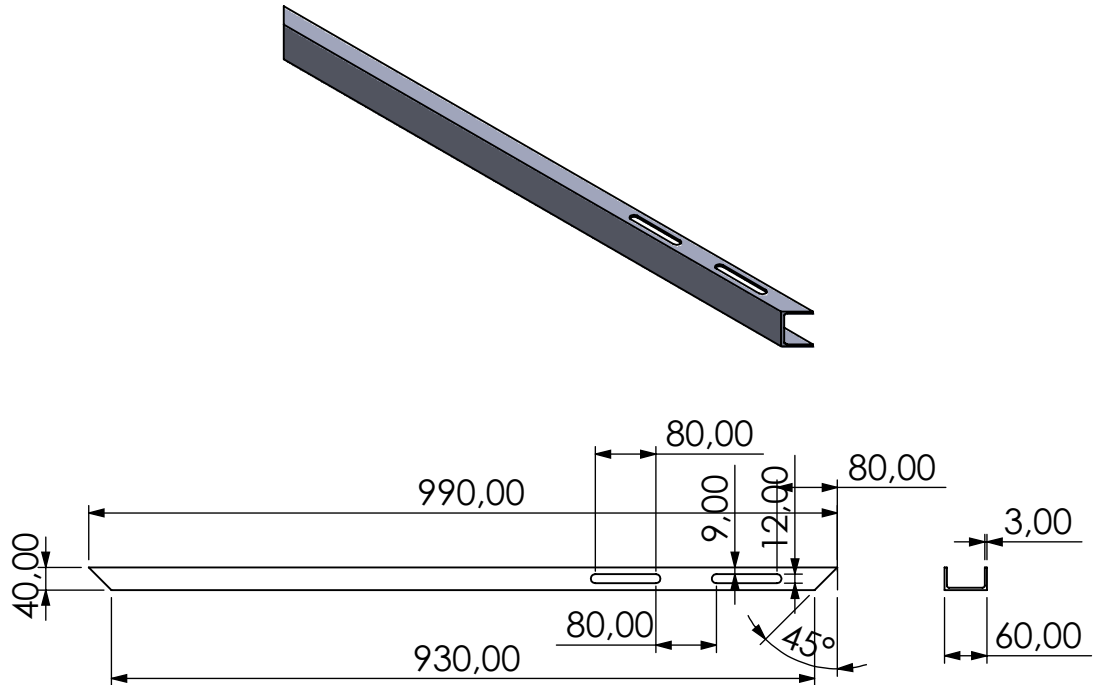
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MESIN PENGGILING SEKAM PADI								SKALA 1:10	DIGAMBAR	24/06/24	NOVAL
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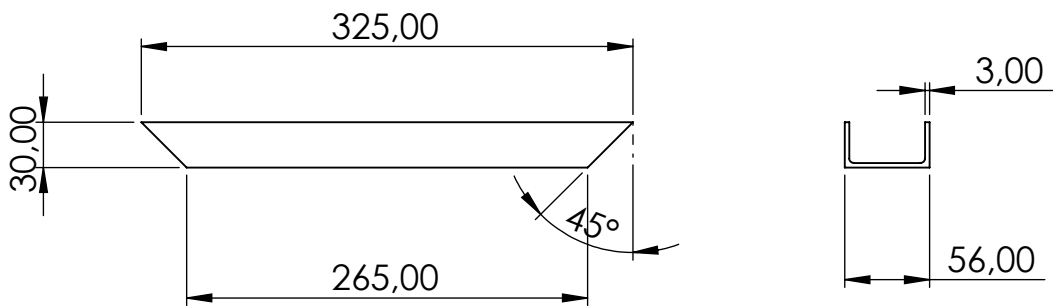
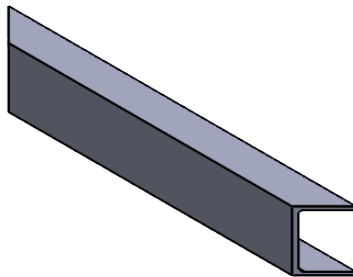
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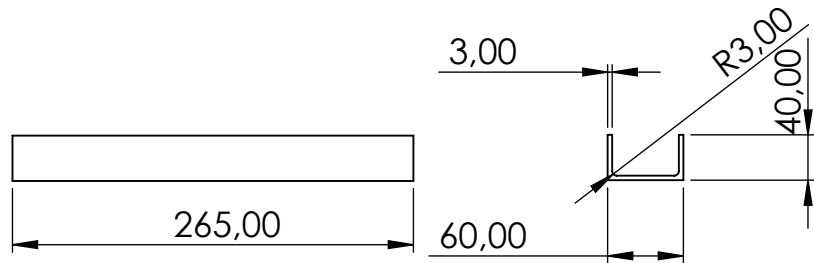
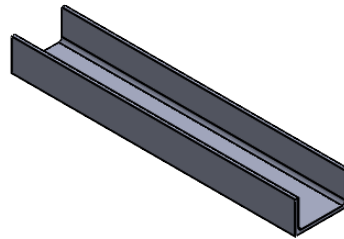
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2	PALANG <i>BASE</i> L325						UNP	LIHAT DETAIL	DIBUAT	3	
1	PALANG U L265						UNP	LIHAT DETAIL	DIBUAT	4	
2	<i>BASE</i> DUDUKAN MESIN L325 R & L						UNP	LIHAT DETAIL	DIBUAT	10 & 9	
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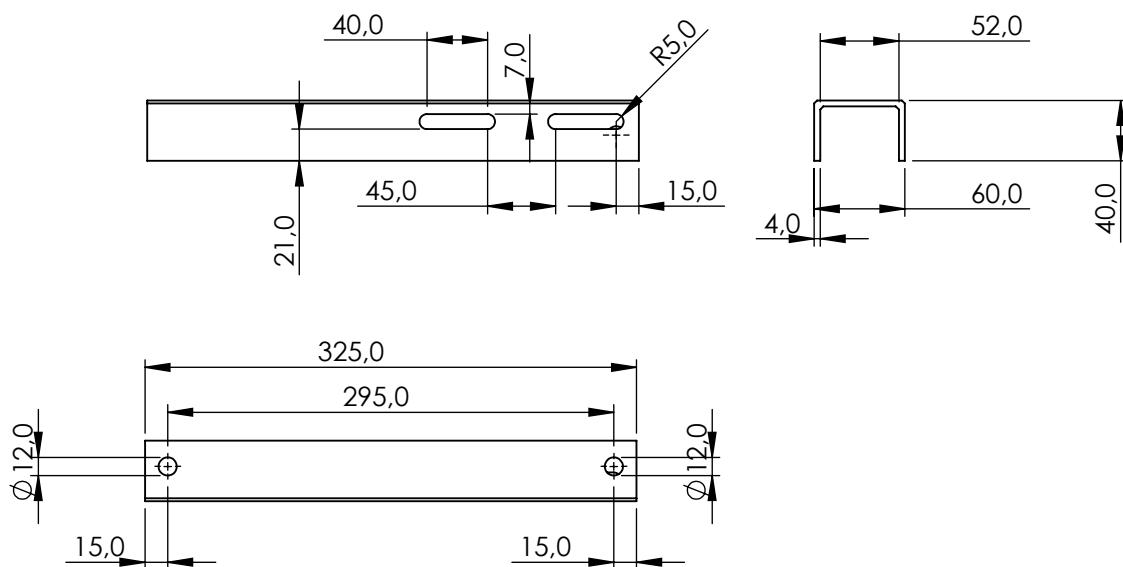
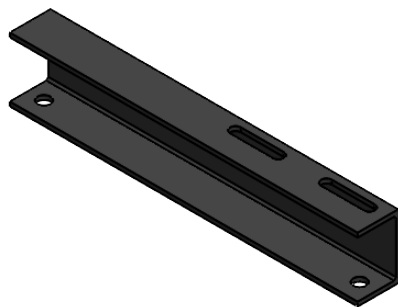
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									DISAHKAN		ROY
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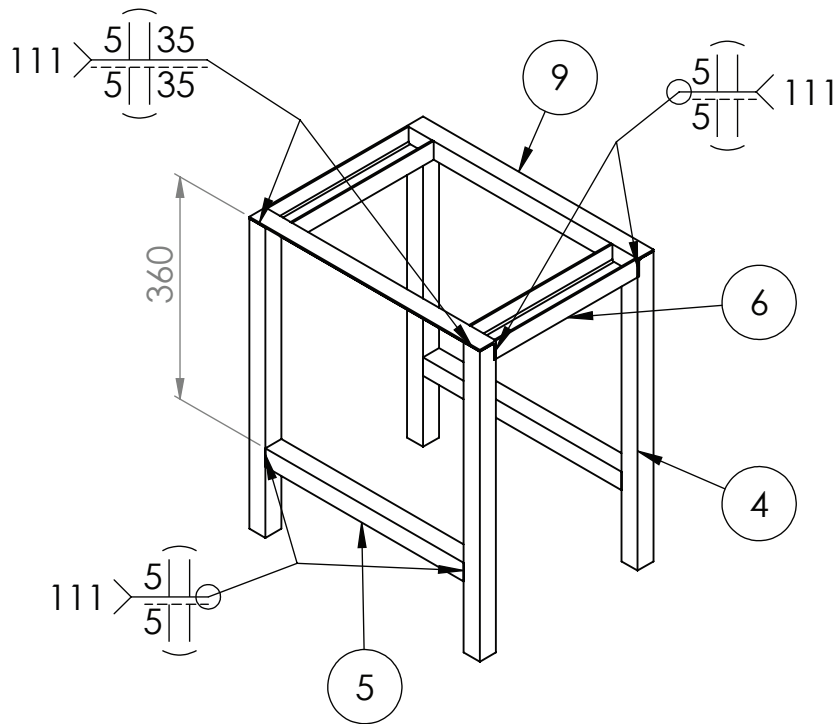
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TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
PALANG BASE L325								SKALA 1:5	DIGAMBAR	24/06/24	NOVAL
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									DISAHKAN		ROY
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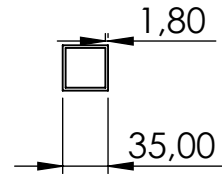
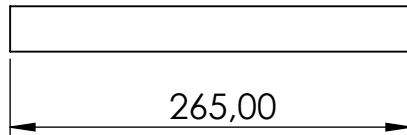
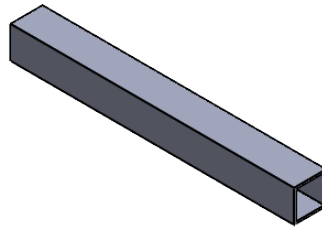
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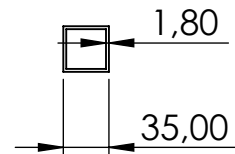
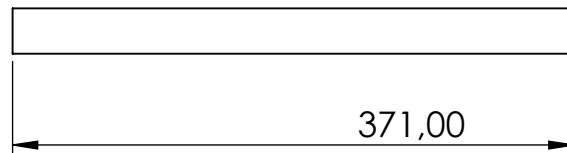
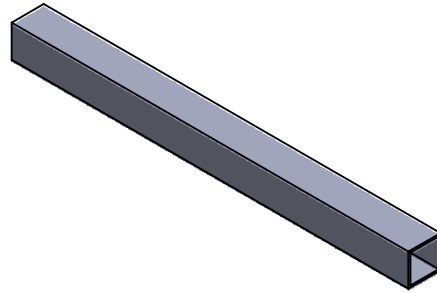
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JML	NAMA BAGIAN					BAHAN	UKURAN JADI	KETERANGAN	NO. ID		
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<	6	30	120	400	1000	2000					
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BASE DUDUKAN MESIN L325								SKALA 1:5	DIGAMBAR	24/06/24	NOVAL
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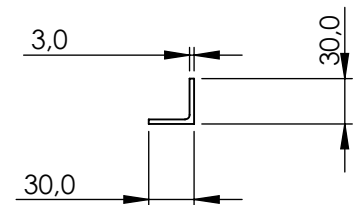
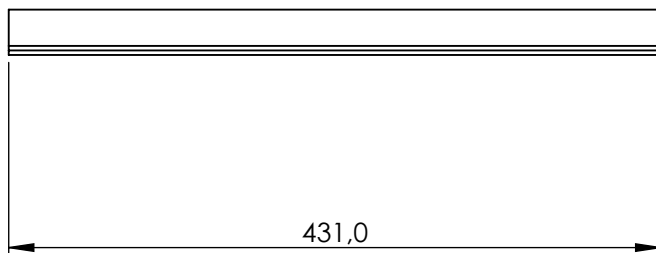
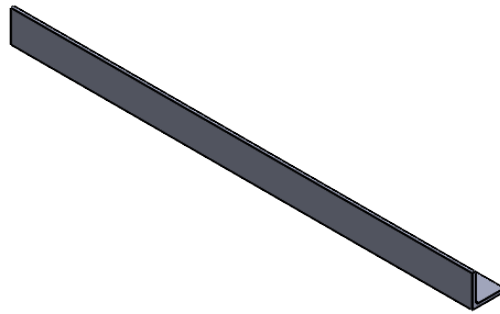
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2	PALANG DUDUKAN HAMMER MILLS						HOLLOW	LIHAT DETAIL	DIBUAT	5	
4	TIANG DUDUKAN HAMMER MILLS						HOLLOW	LIHAT DETAIL	DIBUAT	4	
2	BESI SIKU PENYANGGA ATAS						L	LIHAT DETAIL	DIBUAT	9	
JML	NAMA BAGIAN						BAHAN	UKURAN JADI	KETERANGAN	NO. ID	
>	0	6	30	120	400	1000	PEKERJAAN LANJUT	NO. ORDER	PROYEKSI		
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
SUB ASSEMBLY								SKALA 1:5	DIGAMBAR	24/06/24	NOVAL
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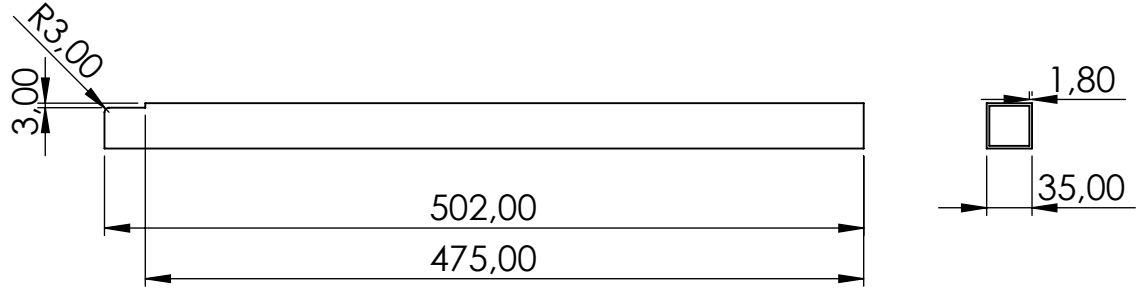
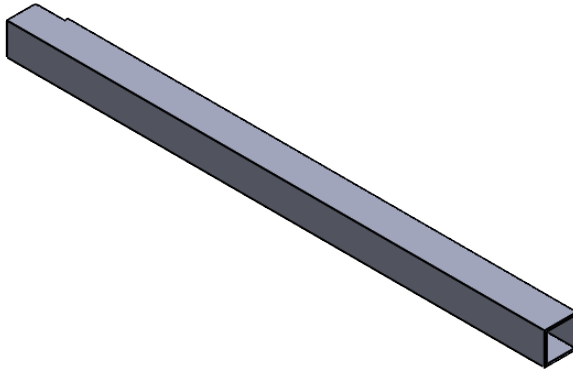
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<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
PALANG DUDUKAN HAMMER MILLS L265								SKALA 1:5	DIGAMBAR	24/06/24	NOVAL
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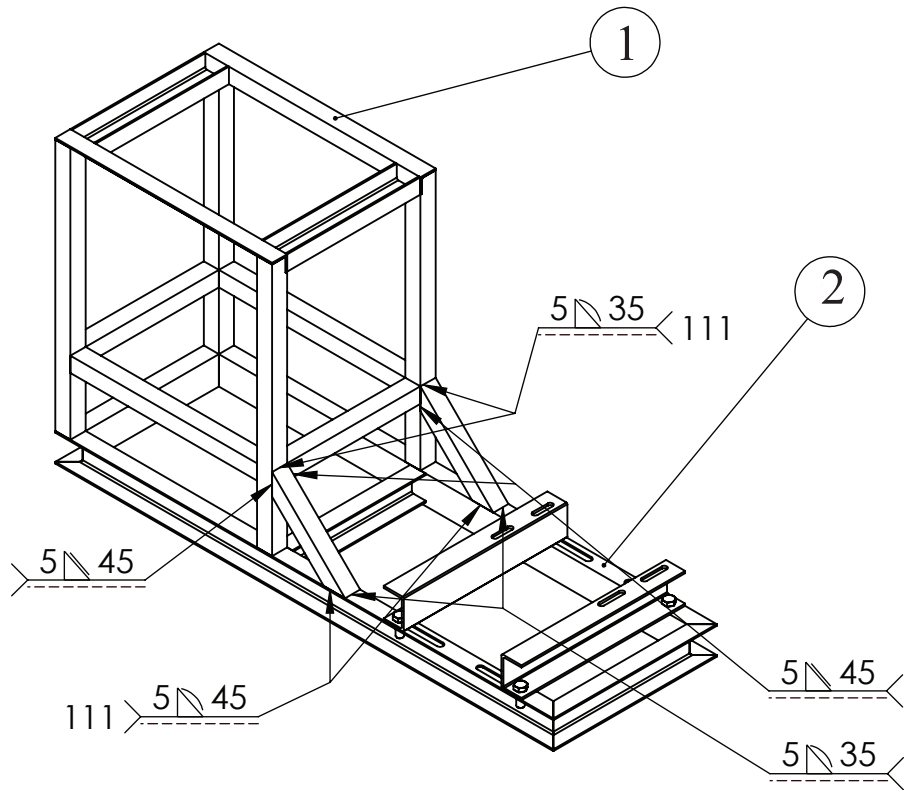
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>	0	6	30	120	400	1000	PEKERJAAN LANJUT	NO. ORDER	PROYEKSI		
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
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									DISAHKAN		ROY
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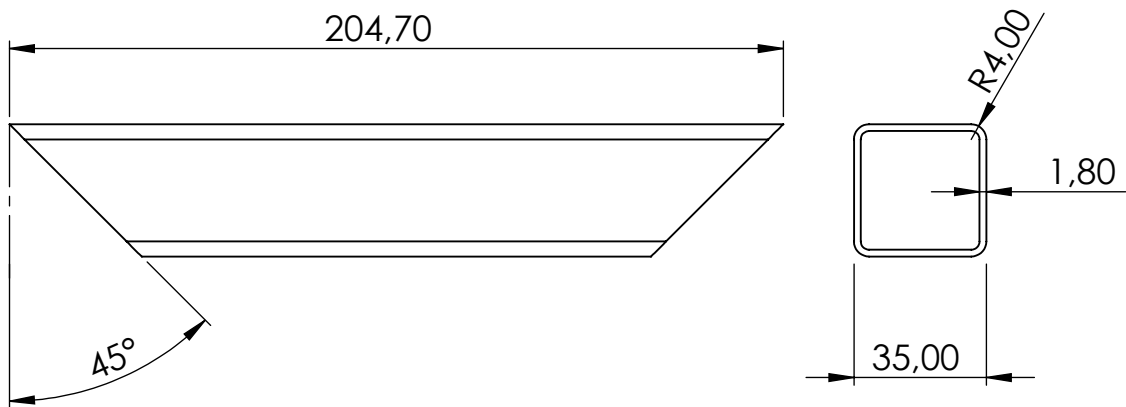
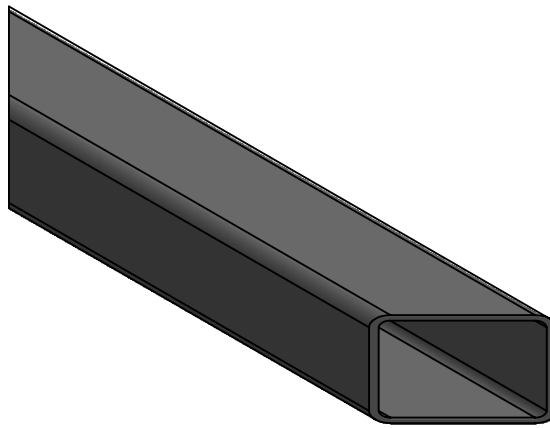
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<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
BESI SIKU PENYANGGA ATAS								SKALA 1:5	DIGAMBAR	24/06/24	NOVAL
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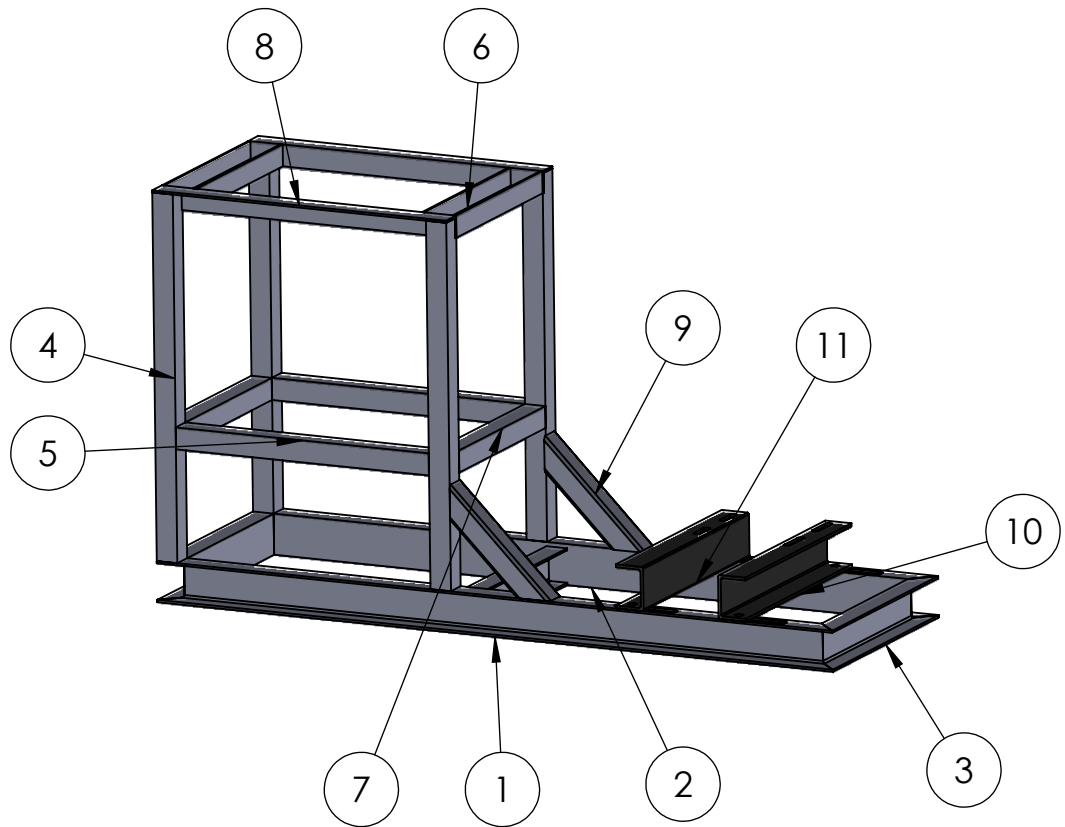
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<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
TIANG DUDUKAN HAMMER MILLS L502								SKALA 1:5	DIGAMBAR	24/06/24	NOVAL
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									DISAHKAN		ROY
 POLITEKNIK NEGERI CILACAP								FORMAT A4	NO GAMBAR 10/TM/PNC		



1	BASE MESIN PENGGILING SEKAM PADI	UNP	LIHAT DETAIL	DIBUAT	1						
1	RANGKA DUDUKAN HAMMER MILLS	HOLLOW	LIHAT DETAIL	DIBUAT	2						
JML	NAMA BAGIAN	BAHAN	UKURAN JADI	KETERANGAN	NO. ID						
>	0	6	30	120	400	1000	PEKERJAAN LANJUT	NO. ORDER	PROYEKSI		
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
ASSEMBLY BASE MESIN PENGGILING SEKAM PADI DAN RANGKA DUDUKAN <i>HAMMER MILLS</i>								SKALA 1:10	DIGAMBAR	24/06/24	NOVAL
									DIPERIKSA		AKHLIS
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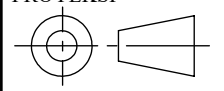


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>	0	6	30	120	400	1000	PEKERJAAN LANJUT	NO. ORDER	PROYEKSI		
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
PENYANGGA <i>BASE</i> DAN DUDUKAN <i>HAMMER MILLS L204</i>								SKALA 1:2	DIGAMBAR	24/06/24	NOVAL
									DIPERIKSA		AKHLIS
									DISAHKAN		ROY
 POLITEKNIK NEGERI CILACAP								FORMAT A4		NO GAMBAR 12/TM/PNC	



NO.ID	NAMA BAGIAN	BAHAN	UKURAN JADI	JML
1	PALANG BASE L990 R	BESI UNP 60X40	LIHAT DETAIL	1
2	PALANG BASE L990 L	BESI UNP 60X40	LIHAT DETAIL	1
3	PALANG BASE L235	BESI UNP 60X40	LIHAT DETAIL	1
4	TIANG DUDUKAN HAMMER MILLS L502	BESI HOLLOW 35X35	LIHAT DETAIL	4
5	PALANG DUDUKAN HAMMER MILLS L371	BESI HOLLOW 35X35	LIHAT DETAIL	2
6	PALANG U DUDUKAN HAMMER MILLS L265	BESI UNP 60X40	LIHAT DETAIL	2
7	PALANG DUDUKAN HAMMER MILLS L265	BESI HOLLOW 35X35	LIHAT DETAIL	2
8	BESI SIKU PENYANGGA ATAS	BESI SIKU L 30X30	LIHAT DETAIL	2
9	PENYANGGA BASE DAN DUDUKAN HAMMER MILLS	BESI HOLLOW 35X35	LIHAT DETAIL	2
10	BASE DUDUKAN MESIN L325 R	BESI UNP 60X40	LIHAT DETAIL	1
11	BASE DUDUKAN MESIN L325 L	BESI UNP 60X40	LIHAT DETAIL	1

>	0	6	30	120	400	1000	PEKERJAAN LANJUT	NO. ORDER	PROYEKSI
<	6	30	120	400	1000	2000			
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2			



RANGKA DUDUKAN HAMMER MILLS

SKALA
1:10

DIGAMBAR	24/06/24	NOVAL
DIPERIKSA		AKHLIS
DISAHKAN		ROY



POLITEKNIK NEGERI CILACAP

FORMAT
A4

NO GAMBAR
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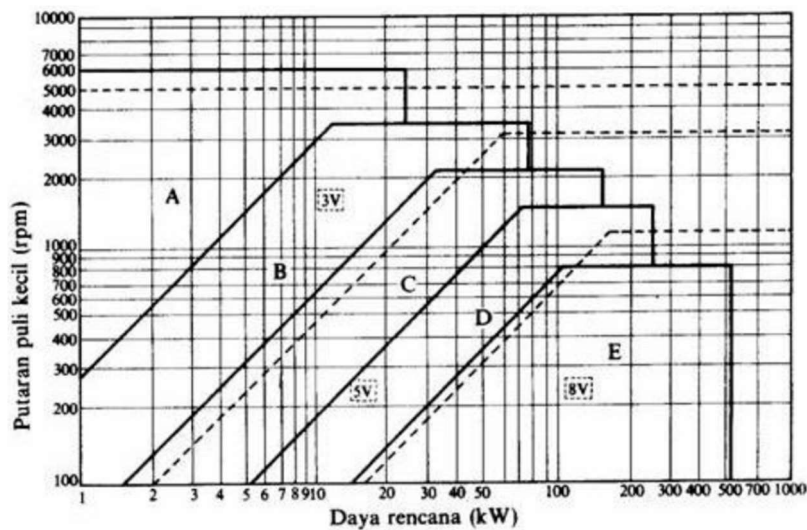
LAMPIRAN 3
DATA PERHITUNGAN TRANSMISI

LAMPIRAN 3

DATA PERHITUNGAN TRANSMISI

Tabel 3A. Faktor koreksi (Sularso & Suga, 2004)

Mesin yang digerakkan		Pengerak					
		Momen puntir puncak > 200%			Momen puntir puncak > 200%		
		Motor arus bolak-balik (momen normal, sangkar bajing, sinkron), motor arus searah (lilitan shunt)			Motor arus bolak-balik (moment tinggi, fasa tunggal, lilitan seri), motor searah (lilitan kompon, lilitan seri), mesin torak, kopling tak tetap		
		Jumlah jam kerja tiap hari			Jumlah jam kerja tiap hari		
		3-5 jam	8-10 jam	16-24 jam	3-5 jam	8-10 jam	16-24 jam
beban sangat	Pengaduk zat cair, kipas angin, blower (sampai 7,5 kW) pompa sentrifugal, konveyor tugas ringan.	1,0	1,1	1,2	1,2	1,3	1,4
Variable beban kecil	Konveyor sabuk (pasir, batu bara), pengaduk, kipas angin (lebih dari 7,5kW), mesin torak, peluncur, mesin perkakas, mesin pencetak.	1,2	1,3	1,4	1,4	1,5	1,6
Variable beban sedang	Konveyor (ember, sekrup), pompa torak, kompresor, pilingan palu, pengocok, roots-blower, mesin tekstil, mesin kayu	1,3	1,4	1,5	1,6	1,7	1,8
Variable beban berat	Penghancur, gilingan bola atau batang, pengangkat, mesin pabrik karet (rol, kalender)	1,5	1,6	1,7	1,8	1,9	2,0



Gambar 3B. Diagram pemilihan sabuk-V (Sularso & Suga, 2004)

Tabel 3C. Diameter minimal puli yang diizinkan dan dianjurkan (mm) (Sularso & Suga, 2004)

Penampang	A	B	C	D	E
Diameter min. yang diizinkan	65	115	175	300	450
Diameter min. yang dianjurkan	95	145	225	350	550

Tipe sabuk sempit	3V	5V	8V
Diameter minimum	67	180	315
Diameter minimum yang dianjurkan	100	224	360

Tabel 3D. Panjang sabuk-V standar (Sularso & Suga, 2004)

Nomor nominal		Nomor nominal		Nomor nominal		Nomor nominal	
(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)
10	254	45	1143	80	2032	115	2921
11	279	46	1168	81	2057	116	2946
12	305	47	1194	82	2083	117	2972
13	330	48	1219	83	2108	118	2997
14	356	49	1245	84	2134	119	3023
15	381	50	1270	85	2159	120	3048
16	406	51	1295	86	2184	121	3073
17	432	52	1321	87	2210	122	3099
18	457	53	1346	88	2235	123	3124
19	483	54	1372	89	2261	124	3150
20	508	55	1397	90	2286	125	3175
21	533	56	1422	91	2311	126	3200
22	559	57	1448	92	2337	127	3226
23	584	58	1473	93	2362	128	3251
24	610	59	1499	94	2388	129	3277
25	635	60	1524	95	2413	130	3302
26	660	61	1549	96	2438	131	3327
27	686	62	1575	97	2464	132	3353
28	711	63	1600	98	2489	133	3378
29	737	64	1626	99	2515	134	3404
30	762	65	1651	100	2540	135	3429
31	787	66	1676	101	2565	136	3454
32	813	67	1702	102	2591	137	3480
33	838	68	1727	103	2616	138	3505
34	864	69	1753	104	2642	139	3531
35	889	70	1778	105	2667	140	3556
36	914	71	1803	106	2692	141	3581
37	940	72	1829	107	2718	142	3607
39	965	73	1854	108	2743	143	3632
39	991	74	1880	109	2769	144	3658
40	1016	75	1905	110	2794	145	3683
41	1041	76	1930	111	2819	146	3708
42	1067	77	1956	112	2845	147	3734
43	1092	78	1981	113	2870	148	3759
44	1118	79	2007	114	2896	149	3785

Tabel 3E. Faktor koreksi K_{θ} (Sularso & Suga, 2004)

$\frac{D_p - d_p}{C}$	Sudut Kontak puli kecil $\theta(^{\circ})$	Faktor Koreksi K_{θ}
0,00	180	1,00
0,10	174	0,99
0,20	169	0,97
0,30	163	0,96
0,40	157	0,94
0,50	151	0,93
0,60	145	0,91
0,70	139	0,89
0,80	133	0,87
0,90	127	0,85
1,00	120	0,82
1,10	113	0,80
1,20	106	0,77
1,30	99	0,73
1,40	91	0,70
1,50	83	0,65

Tabel 3F. Kapasitas daya yang ditransmisikan untuk sabuk tunggal (Sularso & Suga, 2004)

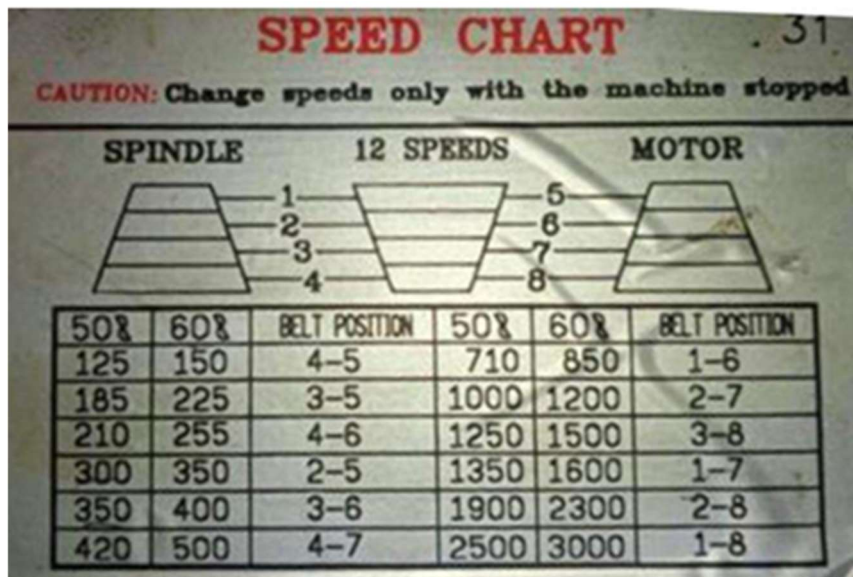
Putaran puli kecil (rpm)	Penampang-A								Penampang-B							
	Merek merah		Standar		Harga tambahan karena perbandingan putaran				Merek merah		Standar		Harga tambahan karena perbandingan putaran			
	67mm	100mm	67mm	100mm	1,25-1,34	1,35-1,51	1,52-1,99	2,00-	118mm	150mm	118mm	150mm	1,25-1,34	1,35-1,51	1,52-1,99	2,00-
200	0,15	0,31	0,12	0,26	0,01	0,02	0,02	0,02	0,51	0,77	0,43	0,67	0,04	0,05	0,06	0,07
400	0,26	0,55	0,21	0,48	0,04	0,04	0,04	0,05	0,90	1,38	0,74	1,18	0,09	0,10	0,12	0,13
600	0,35	0,77	0,27	0,67	0,05	0,06	0,07	0,07	1,24	1,93	1,00	1,64	0,13	0,15	0,18	0,20
800	0,44	0,98	0,33	0,84	0,07	0,08	0,09	0,10	1,56	2,43	1,25	2,07	0,18	0,20	0,23	0,26
1000	0,52	1,18	0,39	1,00	0,08	0,10	0,11	0,12	1,85	2,91	1,46	2,46	0,22	0,26	0,30	0,33
1200	0,59	1,37	0,43	1,16	0,10	0,12	0,13	0,15	2,11	3,35	1,65	2,82	0,26	0,31	0,35	0,40
1400	0,66	1,54	0,48	1,31	0,12	0,13	0,15	0,18	2,35	3,75	1,83	3,14	0,31	0,36	0,41	0,46
1600	0,72	1,71	0,51	1,43	0,13	0,15	0,18	0,20	2,67	4,12	1,98	3,42	0,35	0,41	0,47	0,53

LAMPIRAN 4
DATA PERHITUNGAN PROSES GURDI

Tabel 4A. Kecepatan potong untuk proses frais untuk pasangan benda kerja dan pisau HSS (Widarto dkk, 2008)

MATERIAL	CUTTING SPEED (sfpm) 1 2			
	PLAIN MILLING CUTTERS		END MILLING CUTTERS	
	Roughing	Finishing	Roughing	Finishing
Aluminum.....	400 to 1,000	400 to 1,000	400 to 1,000	400 to 1,000
Brass, composition.....	125 to 200	90 to 200	90 to 150	90 to 150
Brass, yellow.....	150 to 200	100 to 250	100 to 200	100 to 200
Bronze, phosphor and manganese.....	30 to 80	25 to 100	30 to 80	30 to 80
Cast iron (hard).....	25 to 40	10 to 30	25 to 40	20 to 45
Cast iron (soft and medium).....	40 to 75	25 to 80	35 to 65	30 to 80
Monel metal.....	50 to 75	50 to 75	40 to 60	40 to 60
Steel, hard.....	25 to 50	25 to 70	25 to 50	25 to 70
Steel, soft.....	60 to 120	45 to 110	50 to 85	45 to 100

Tabel 4B. Putaran mesin



Tabel 4C. Tebal beram per gigi untuk beberapa tipe pisau frais dan benda kerja yang dikerjakan (inchi) (Widarto dkk, 2008)

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	.007	.005	.004	.004	.006	.003	.004	.002	.003
	to	to	to	to	to	to	to	to	to	to
	.022	.020	.014	.012	.016	.020	.012	.016	.008	.014
HELICAL MILLS	.006	.006	.003	.004	.004	.002	.002	.003	.002	.003
	to	to	to	to	to	to	to	to	to	to
	.018	.016	.011	.010	.018	.018	.010	.013	.007	.012
SIDE CUTTING MILLS	.004	.004	.003	.003	.002	.003	.002	.003	.001	.002
	to	to	to	to	to	to	to	to	to	to
	.013	.012	.008	.007	.009	.012	.007	.009	.005	.008
END MILLS	.003	.003	.003	.002	.002	.003	.001	.002	.001	.002
	to	to	to	to	to	to	to	to	to	to
	.011	.010	.007	.006	.008	.010	.006	.008	.004	.007
FORM RELIEVED CUTTERS	.002	.002	.001	.001	.002	.002	.001	.002	.001	.001
	to	to	to	to	to	to	to	to	to	to
	.007	.006	.004	.004	.005	.006	.004	.005	.003	.004
CIRCULAR SAWS	.002	.002	.001	.001	.001	.002	.001	.001	.005	.001
	to	to	to	to	to	to	to	to	to	to
	.005	.005	.003	.003	.004	.006	.003	.004	.002	.004

Tabel 4D. Data material, kecepatan potong, sudut mata bor HSS, dan cairan pendingin proses gurdi (*cutting speed*) (Widarto dkk, 2008)

MATERIAL	CUTTING SPEEDS 1.		POINT ANGLE	LIP CLEARANCE	COOLANTS
	(METERS/MINUTE)	(FEET/MINUTE)			
	MPM	FPM			
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 Brinell	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

Tabel 4E. Putaran mata bor dan gerak makan pada beberapa jenis bahan (Widarto dkk, 2008)

MATERIAL AND CUTTING SPEED (FT PER MINUTE)											
Diameter of drill (in.)	Aluminum	Brass & Bronze	Cast iron	Mild steel 0.2-0.3 carbon (LOW)	Steel 0.4-0.5 carbon (MEC)	Tool steel 1.2 carbon and drop forgings	Conn. rod molybdenum steel	3.5 nickel steel	Stainless steel and monel metal	Malleable iron	Feed per revolution (in.)
	300	200	100	110	80	80	55	80	50	85	
	Revolutions per minute										
1/16	18,338	12,224	6,112	6,724	4,883	3,888	3,404	3,978	3,058	5,192	0.0015
1/8	9,168	6,112	3,058	3,362	2,444	1,834	1,702	1,988	1,528	2,596	0.002-0.003
3/16	6,108	4,072	2,038	2,242	1,630	1,222	1,120	1,324	1,018	1,734	0.004
1/4	4,584	3,058	1,528	1,681	1,222	917	851	994	784	1,298	0.006
5/16	3,888	2,444	1,222	1,344	978	733	672	794	611	1,039	0.006
3/8	3,054	2,038	1,018	1,121	815	611	560	662	509	867	0.008
7/16	2,822	1,748	874	921	699	524	481	568	437	742	0.007
1/2	2,292	1,528	784	840	611	459	420	497	382	649	0.008
9/16	2,037	1,358	679	747	543	407	373	441	340	577	0.008
5/8	1,838	1,224	612	673	489	367	337	398	306	520	0.009
11/16	1,665	1,110	555	611	444	333	300	360	273	472	0.009
3/4	1,524	1,016	508	559	408	306	279	330	254	433	0.010
13/16	1,422	948	474	521	379	285	261	308	237	403	0.010
7/8	1,314	878	438	482	349	262	241	288	219	371	0.011
1 1/16	1,221	814	407	448	326	244	224	265	204	348	0.012
1	1,148	784	382	420	308	229	210	258	191	326	0.013
1 1/8	1,077	718	359	395	287	215	197	233	180	305	0.013
1 1/8	1,020	680	340	374	272	204	187	221	170	288	0.014
1 3/16	988	644	322	354	258	193	177	209	161	274	0.014
1 1/4	918	612	308	337	245	183	168	199	153	260	0.015
1 5/16	873	582	291	320	233	175	160	189	148	248	0.016
1 3/8	834	558	278	308	222	167	153	180	139	236	0.015
1 7/16	795	530	265	292	212	159	148	172	133	225	0.015
1 1/2	762	508	254	279	204	153	140	165	127	216	0.015
1 9/16	732	488	244	268	195	146	134	159	122	207	0.016
1 5/8	702	468	234	267	188	141	129	152	117	201	0.016
1 11/16	678	452	226	249	181	136	124	147	113	192	0.016
1 3/4	654	436	218	240	175	131	120	142	109	186	0.016
1 13/16	630	420	210	231	168	126	116	137	105	179	0.016
1 7/8	612	408	204	224	163	122	112	133	102	173	0.016
1 15/16	591	394	197	216	158	118	108	128	99	168	0.016
2	573	382	191	210	153	115	105	124	96	162	0.016

1. Rotational speed value for carbide twist drills are 200 to 300 percent higher than H.S.S.

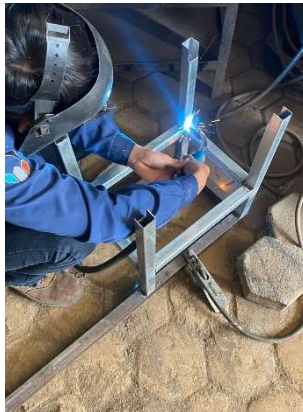
LAMPIRAN 5
DOKUMENTASI PROSES PRODUKSI



Gambar 5A. Proses pemotongan



Gambar 5B. Proses gurdi



Gambar 5C. Proses pengelasan



Gambar 5D. Proses pengerindaan



Gambar 5E. Proses pengecatan