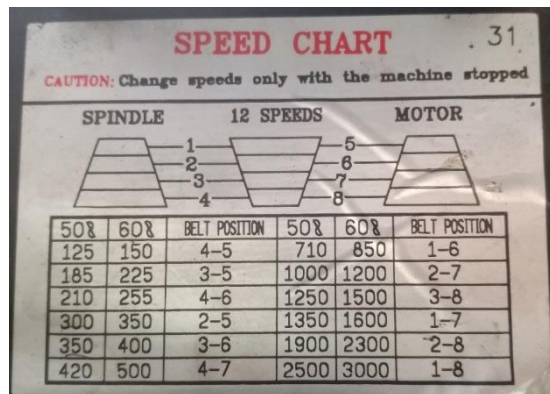


LAMPIRAN 1
SPEKIFIKASI KECEPATAN PUTARAN SPINDLE DAN RUMUS EMPIRIS
GERAK MAKAN MESIN *MILL & DRILL*.



Gambar 1A .Variasi kecepatan *spindle* mesin *mill & drill*

- Untuk baja

$$f = 0,084\sqrt[3]{d}; mm / put \dots\dots\dots (8.2)$$

- Untuk besi tuang

$$f = 0,1\sqrt[3]{d}; mm / put \dots\dots\dots (8.3)$$

Gambar 1B. Rumus empiris gerak makan gurdi

LAMPIRAN 2

TABEL DATA MATERIAL, CUTTING SPEED, DAN SPESIFIKASI KECEPATAN PUTARAN SPINDLE MESIN BUBUT.

Tabel 2A. Data material dan cutting speed proses bubut (Widharto, 2008)

Material	Teg. Tarik (kg/mm ²)	CS (m/mnt)	Material	Teg. Tarik (kg/mm ²)	CS (m/mnt)
Plain carbon steel			Spring Steel (JIS Grade)		
ST37 / M5	37	32	SUP4, 6, 7, 9, 10, 11	125	13
1030 / S30C	48	32	SUS 302, 304, 316 WPA	170	5
1035 / S35C	52	25	SUS 302,304, WPB	210	5
1040 / S40C	55	25	SUS 631J1 WPC	200	5
1045 / S45C / EMS45 / 1730	58	25	Stainless Steel		10-25
1050 / S50C / ST60	62	25	304, 304L, 316, 316L	70	18
1055 / S55C	66	25	410, 416	77	18
Alloy Steel (JIS Grade)			420, 420F	84	18
SNC2, 3, 21	95	18	440C, 440F	91	18
SNC22	100	13	Copper		70
SNCM1, 2, 22	90	18	Lead Bronze		50-70
SNCM7, 8, 23, 25	100	13	Phospor Bronze		40-50
SCr3, 4, 21, 22	90	18	Pure Aluminum		200-300
SCr5	100	13	Aluminum Alloy		70-120
SCM2, 3, 21, 22	90	18	Cast Iron		
SCM4, 5, 23	100	13	GG20		25
Tool Steel (AISI Grade)			GG25		18
W Series	70	18	GG30,35,40		18
O Series	135	13	GG45,50		13
D Series	140	13	GG55,60		5
A Series	140	13			
H Series	140	13			
L Series	100	13			
P Series	100	13			
S Series	130	13			
HSS T Series	150	13			
HSS M Series	140	13			



Gambar 2A Variasi kecepatan *spindle* mesin bubut

a		60T				30T			
LEVER		T	S	R	V	T	S	R	V
A	D	1.392	1.300	1.044	.835	.696	.650	.522	.418
B	D	.380	.351	.282	.226	.188	.175	.141	.113
A	C	.188	.176	.141	.113	.084	.088	.070	.056
B	C	.094	.088	.070	.056	.047	.044	.035	.028
		.174	.162	.130	.104	.087	.081	.065	.052
		.047	.044	.035	.028	.024	.022	.017	.014

Gambar 2B Variasi feeding mesin bubut

LAMPIRAN 3
TABEL ULIR METRIS.

Tabel 3A. Pitch ulir metris

Tabel Ulir Metris					
Thread Designation	Pitch	Bolt		Nut	
		Nominal diameter D1	Thread height H1	Core diameter D2	Thread height H2
M3	0,5	3,00	0,337	2,459	0,285
M3,5	0,6	3,50	0,416	2,850	0,355
M4	0,7	4,00	0,490	3,242	0,414
M4,5	0,75	4,50	0,529	3,688	0,448
M5	0,8	5,00	0,551	4,134	0,479
M6	1,0	6,00	0,717	4,917	0,609
M8	1,25	8,00	0,907	6,647	0,771
M10	1,5	10,00	1,100	8,376	0,934
M12	1,75	12,00	1,285	10,106	1,098
M14	2,0			11,835	1,257
M16	2,0			13,835	1,257

LAMPIRAN 4
DOKUMENTASI PROSES PROSES PRODUKSI.



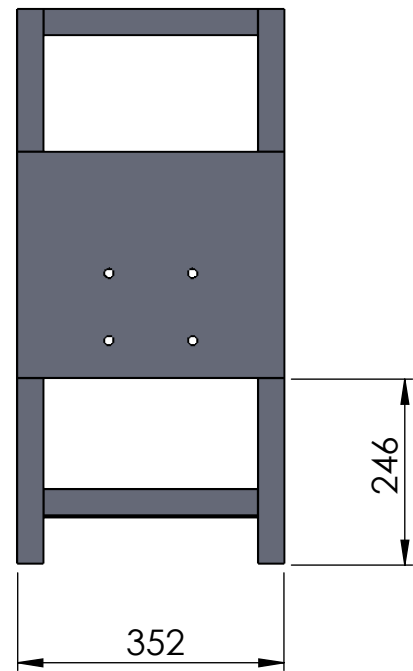
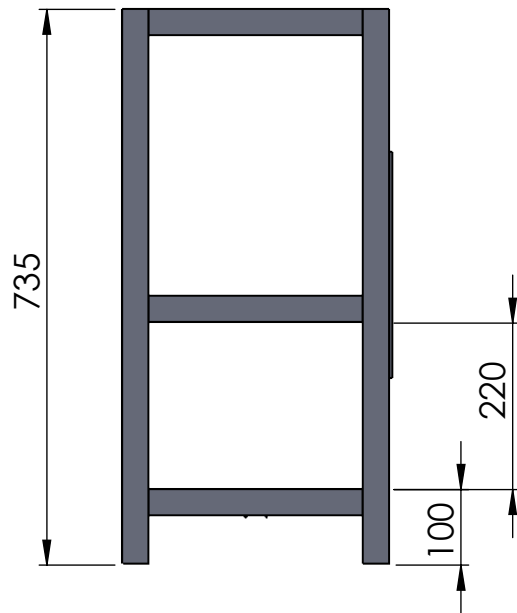
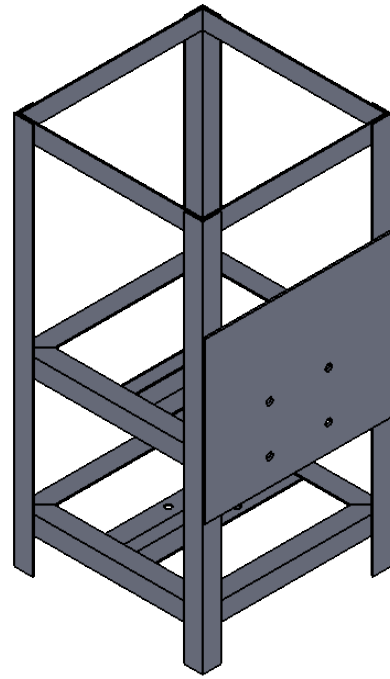
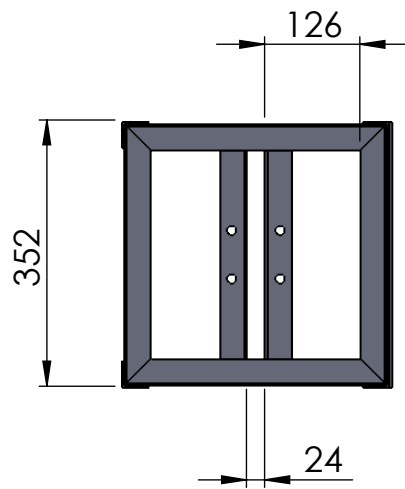


LAMPIRAN 5
DOKUMENTASI PENGUJIAN MESIN.



LAMPIRAN 6

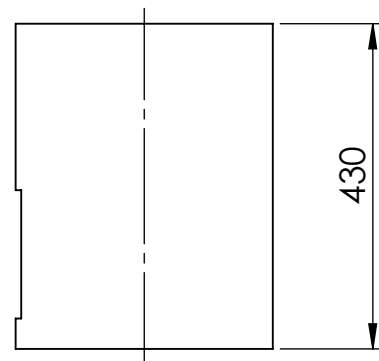
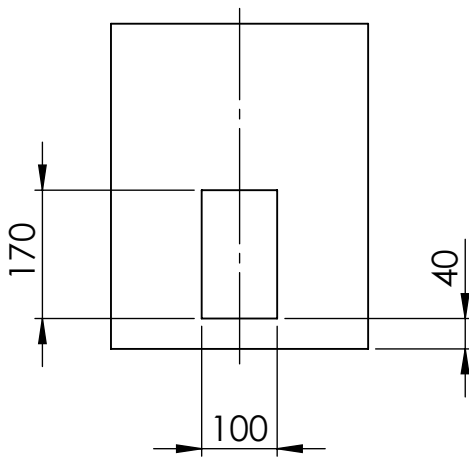
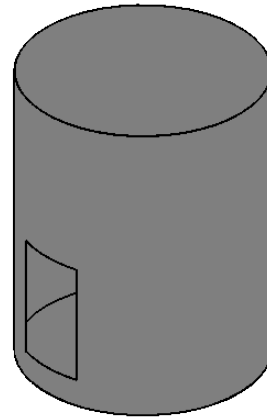
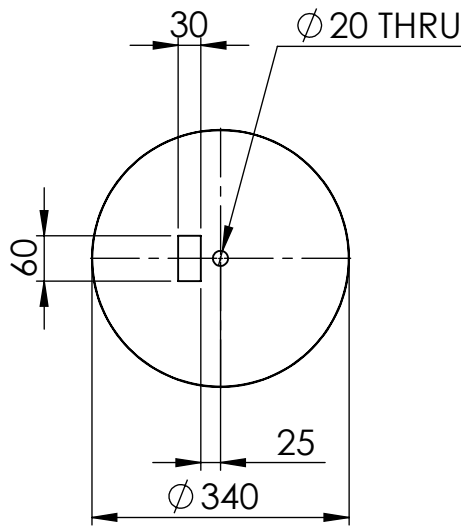
DESAIN RINCI *SUB ASSEMBLY* RANGKA



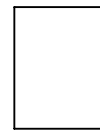
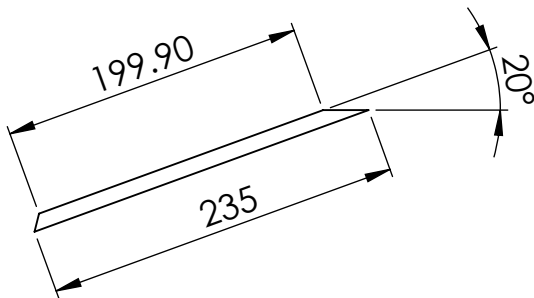
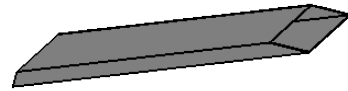
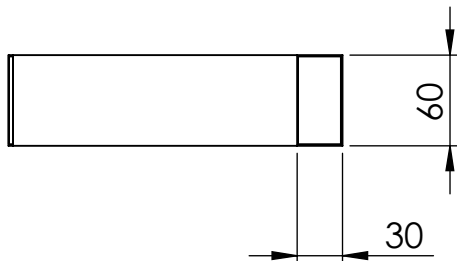
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<	6	30	120	400	1000	2000						
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2						
RANGKA									SKALA	DIGAMBAR	18/08/2023	FIKRI
									1 : 10	DIPERIKSA		ROY
										DISAHKAN		
POLITEKNIK NEGERI CILACAP, JURUSAN TEKNIK MESIN JL. dr. SOETOMO, NO : 01, SIDAKAYA, CILACAP, 53121 TELP. 0282 - 533329, E-mail : jtm@pnc.ac.id									FORMAT	SATUAN	NO. GAMBAR	
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LAMPIRAN 7

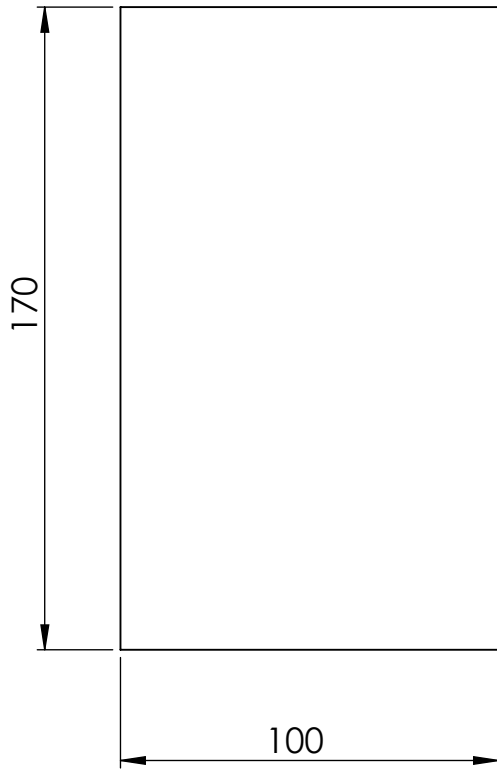
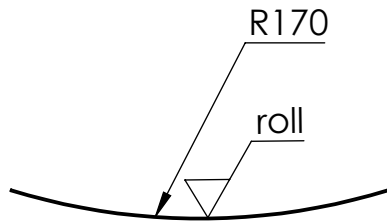
DESAIN RINCI *SUB ASSEMBLY* TABUNG PENAMPUNG



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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						
SUB ASSEMBLY TABUNG PENAMPUNG								SKALA	DIGAMBAR	18/08/2023	FIKRI	
								1 : 10	DIPERIKSA		ROY	
									DISAHKAN			
POLITEKNIK NEGERI CILACAP, JURUSAN TEKNIK MESIN JL. dr. SOETOMO, NO : 01, SIDAKAYA, CILACAP, 53121 TELP. 0282 - 533329, E-mail : jtm@pnc.ac.id								FORMAT	SATUAN	NO. GAMBAR		
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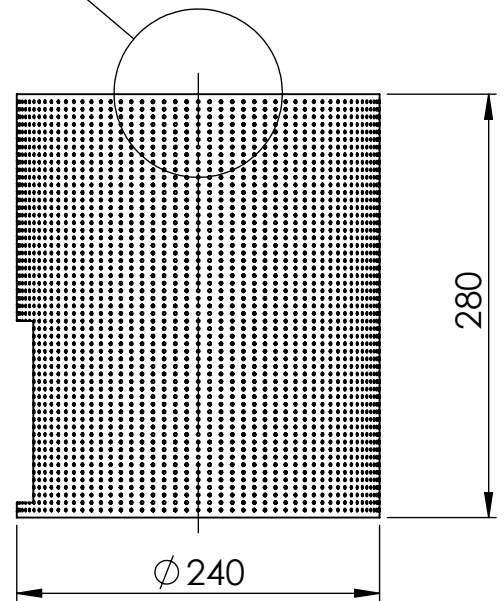
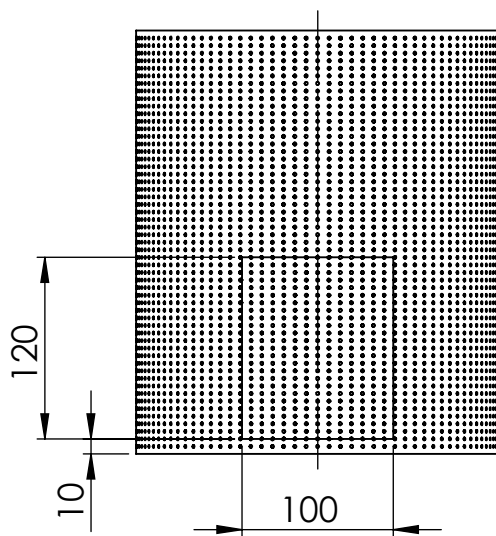
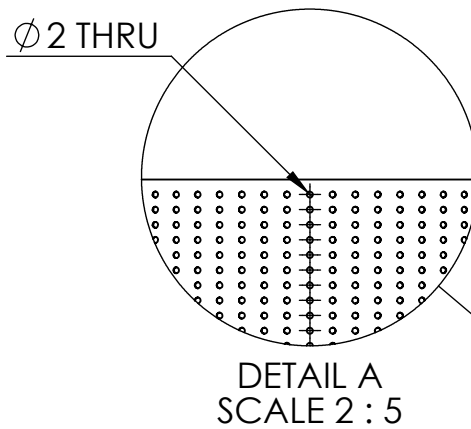
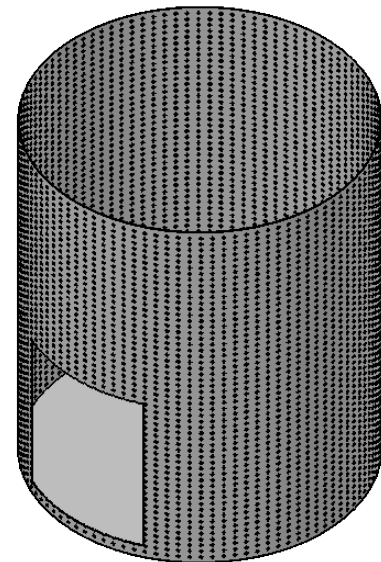
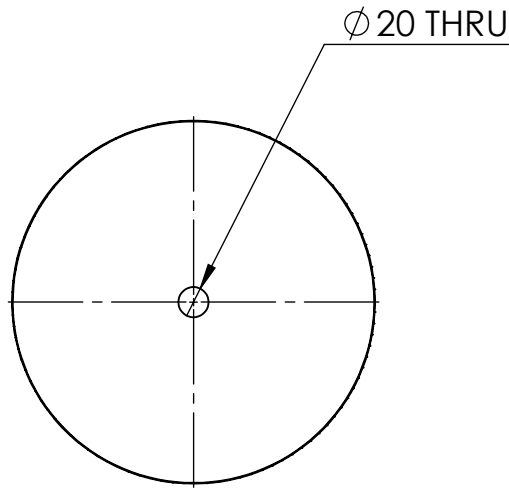
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>	0	6	30	120	400	1000	PEKERJAAN LANJUT	NO. ORDER	PROYEKSI 			
<	6	30	120	400	1000	2000						
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2						
SUB ASSEMBLY TABUNG PENAMPUNG								SKALA	DIGAMBAR	18/08/2023	FIKRI	
								1 : 5	DIPERIKSA		ROY	
									DISAHKAN			
POLITEKNIK NEGERI CILACAP, JURUSAN TEKNIK MESIN JL. dr. SOETOMO, NO : 01, SIDAKAYA, CILACAP, 53121 TELP. 0282 - 533329, E-mail : jtm@pnc.ac.id								FORMAT	SATUAN	NO. GAMBAR		
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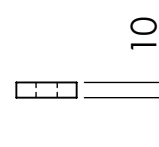
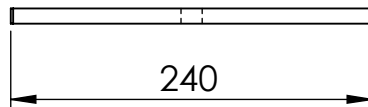
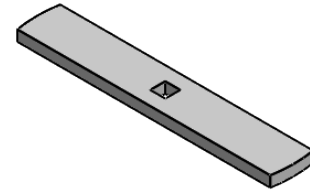
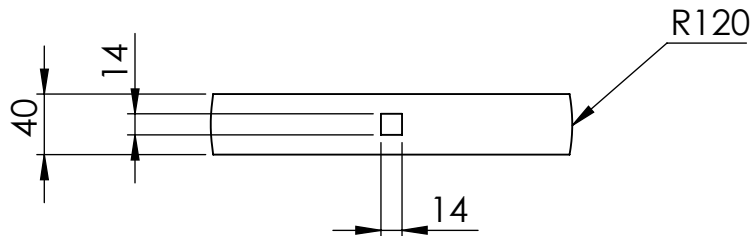
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>	0	6	30	120	400	1000	PEKERJAAN LANJUT	NO. ORDER	PROYEKSI 			
<	6	30	120	400	1000	2000						
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2						
SUB ASSEMBLY TABUNG PENAMPUNG								SKALA	DIGAMBAR	18/08/2023	FIKRI	
								1 : 2	DIPERIKSA		ROY	
									DISAHKAN			
POLITEKNIK NEGERI CILACAP, JURUSAN TEKNIK MESIN JL. dr. SOETOMO, NO : 01, SIDAKAYA, CILACAP, 53121 TELP. 0282 - 533329, E-mail : jtm@pnc.ac.id								FORMAT	SATUAN	NO. GAMBAR		
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LAMPIRAN 8

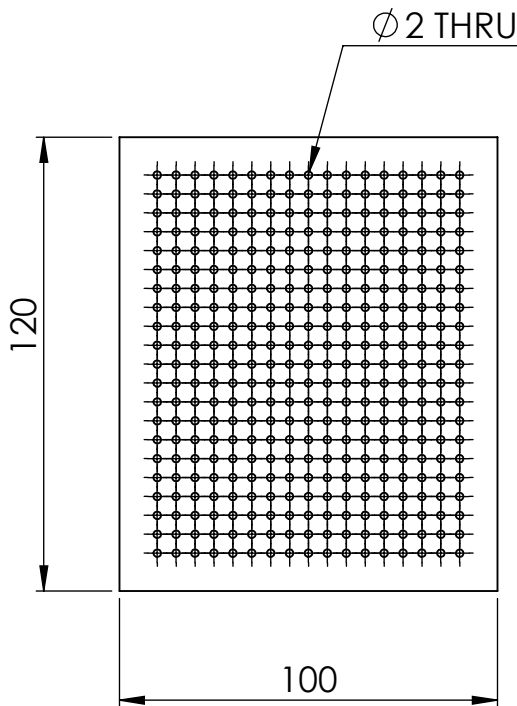
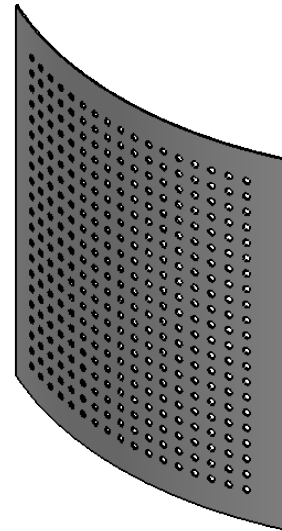
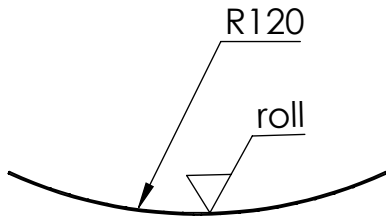
DESAIN RINCI *SUB ASSEMBLY* TABUNG *SPINNER*



1	TABUNG SPINNER						ALUMINIUM 1100	Ø240 x 280	C1			
JML	NAMA BAGIAN						POS	BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	F
>	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 TABUNG SPINNER								SKALA	DIGAMBAR	18/08/2023	FIKRI	
								1 : 5	DIPERIKSA		ROY	
									DISAHKAN			
POLITEKNIK NEGERI CILACAP, JURUSAN TEKNIK MESIN JL. dr. SOETOMO, NO : 01, SIDAKAYA, CILACAP, 53121 TELP. 0282 - 533329, E-mail : jtm@pnc.ac.id								FORMAT	SATUAN	NO. GAMBAR		
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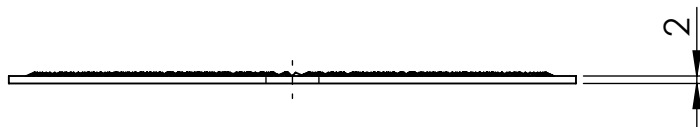
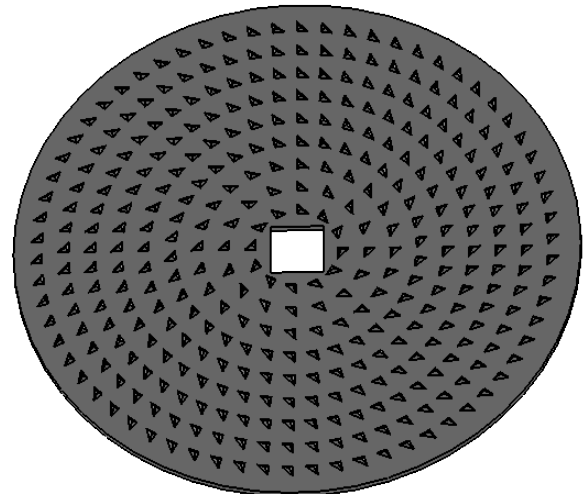
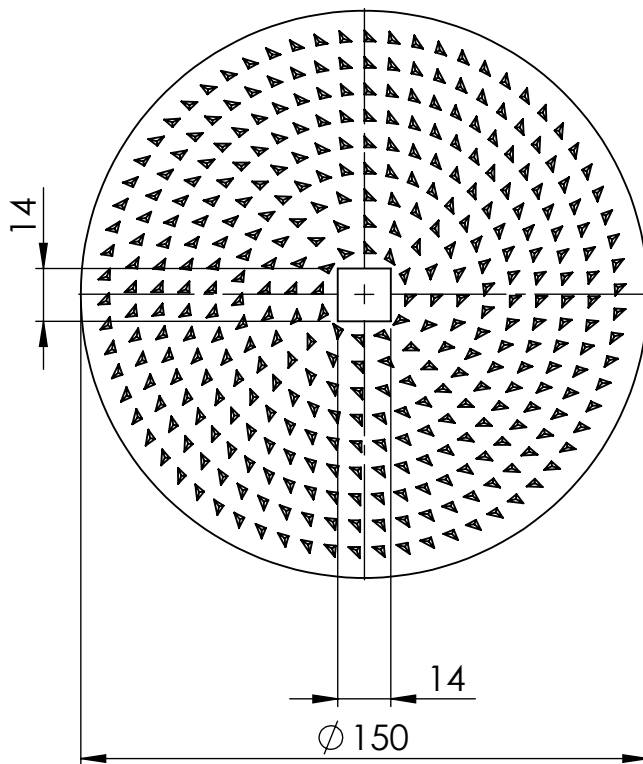
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JML	NAMA BAGIAN						POS	BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	F
>	0	6	30	120	400	1000	PEKERJAAN LANJUT	NO. ORDER	PROYEKSI 			
<	6	30	120	400	1000	2000						
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2						
SUB ASSEMBLY TABUNG SPINNER								SKALA	DIGAMBAR	18/08/2023	FIKRI	
								1 : 5	DIPERIKSA		ROY	
									DISAHKAN			
POLITEKNIK NEGERI CILACAP, JURUSAN TEKNIK MESIN JL. dr. SOETOMO, NO : 01, SIDAKAYA, CILACAP, 53121 TELP. 0282 - 533329, E-mail : jtm@pnc.ac.id								FORMAT	SATUAN	NO. GAMBAR		
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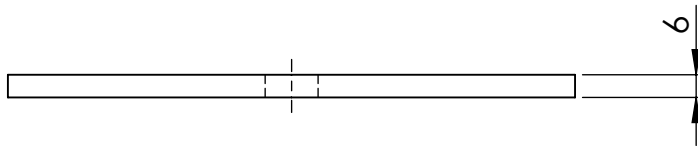
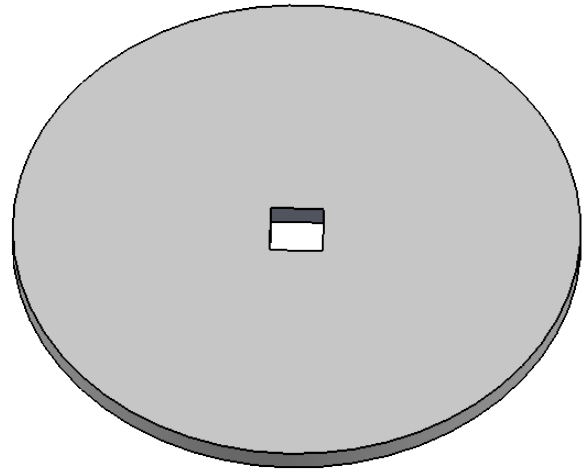
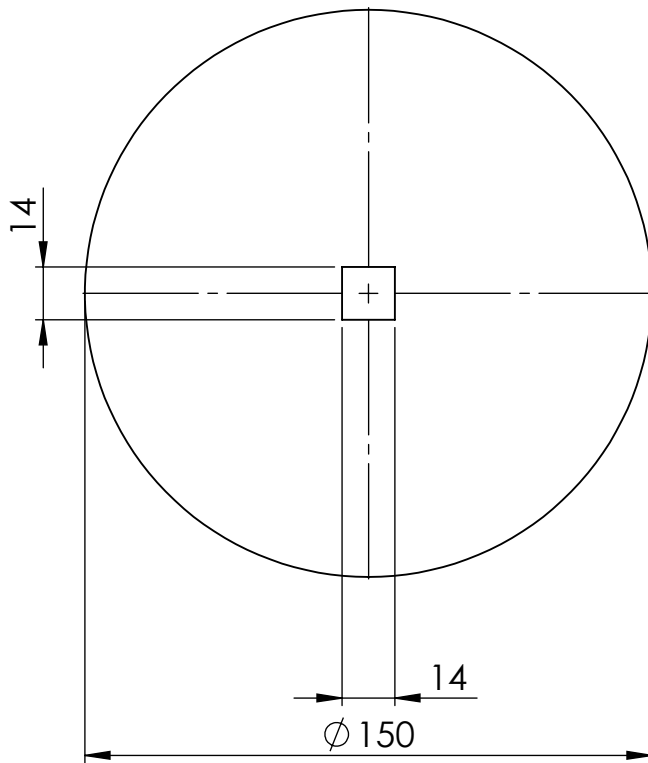
1	PINTU TABUNG SPINNER						ALUMINIUM 1100	100 x 120	C3			
JML	NAMA BAGIAN						POS	BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	F
>	0	6	30	120	400	1000	PEKERJAAN LANJUT	NO. ORDER	PROYEKSI 			
<	6	30	120	400	1000	2000						
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2						
SUB ASSEMBLY TABUNG SPINNER								SKALA	DIGAMBAR	18/08/2023	FIKRI	
								1 : 2	DIPERIKSA		ROY	
									DISAHKAN			
POLITEKNIK NEGERI CILACAP, JURUSAN TEKNIK MESIN JL. dr. SOETOMO, NO : 01, SIDAKAYA, CILACAP, 53121 TELP. 0282 - 533329, E-mail : jtm@pnc.ac.id								FORMAT	SATUAN	NO. GAMBAR		
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LAMPIRAN 9

DESAIN RINCI *SUB ASSEMBLY* PEMARUT



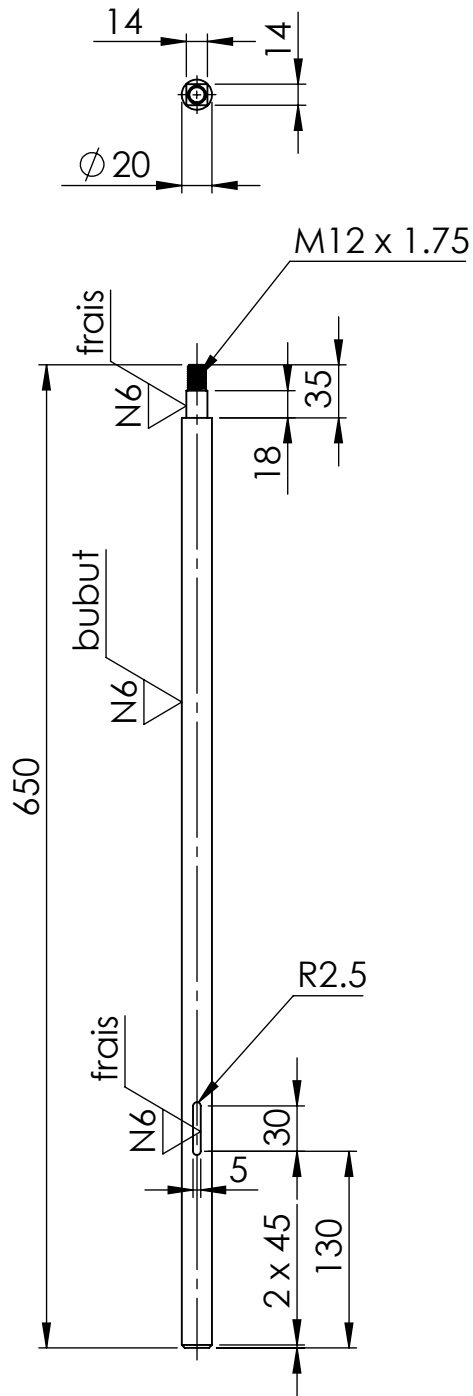
1	PEMARUT						STAINLESS STEEL	Ø150 x 2	D1			
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>	0	6	30	120	400	1000	PEKERJAAN LANJUT	NO. ORDER	PROYEKSI 			
<	6	30	120	400	1000	2000						
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2						
SUB ASSEMBLY PEMARUT								SKALA	DIGAMBAR	18/08/2023	FIKRI	
								1 : 2	DIPERIKSA		ROY	
									DISAHKAN			
POLITEKNIK NEGERI CILACAP, JURUSAN TEKNIK MESIN JL. dr. SOETOMO, NO : 01, SIDAKAYA, CILACAP, 53121 TELP. 0282 - 533329, E-mail : jtm@pnc.ac.id								FORMAT	SATUAN	NO. GAMBAR		
								A4	mm	MPPK/28		



1	DUDUKAN PEMARUT						ALUMINIUM 6061	Ø150 x 6	D2			
JML	NAMA BAGIAN						POS	BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	F
>	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 PEMARUT								SKALA	DIGAMBAR	18/08/2023	FIKRI	
								1 : 2	DIPERIKSA		ROY	
									DISAHKAN			
POLITEKNIK NEGERI CILACAP, JURUSAN TEKNIK MESIN JL. dr. SOETOMO, NO : 01, SIDAKAYA, CILACAP, 53121 TELP. 0282 - 533329, E-mail : jtm@pnc.ac.id								FORMAT	SATUAN	NO. GAMBAR		
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LAMPIRAN 10

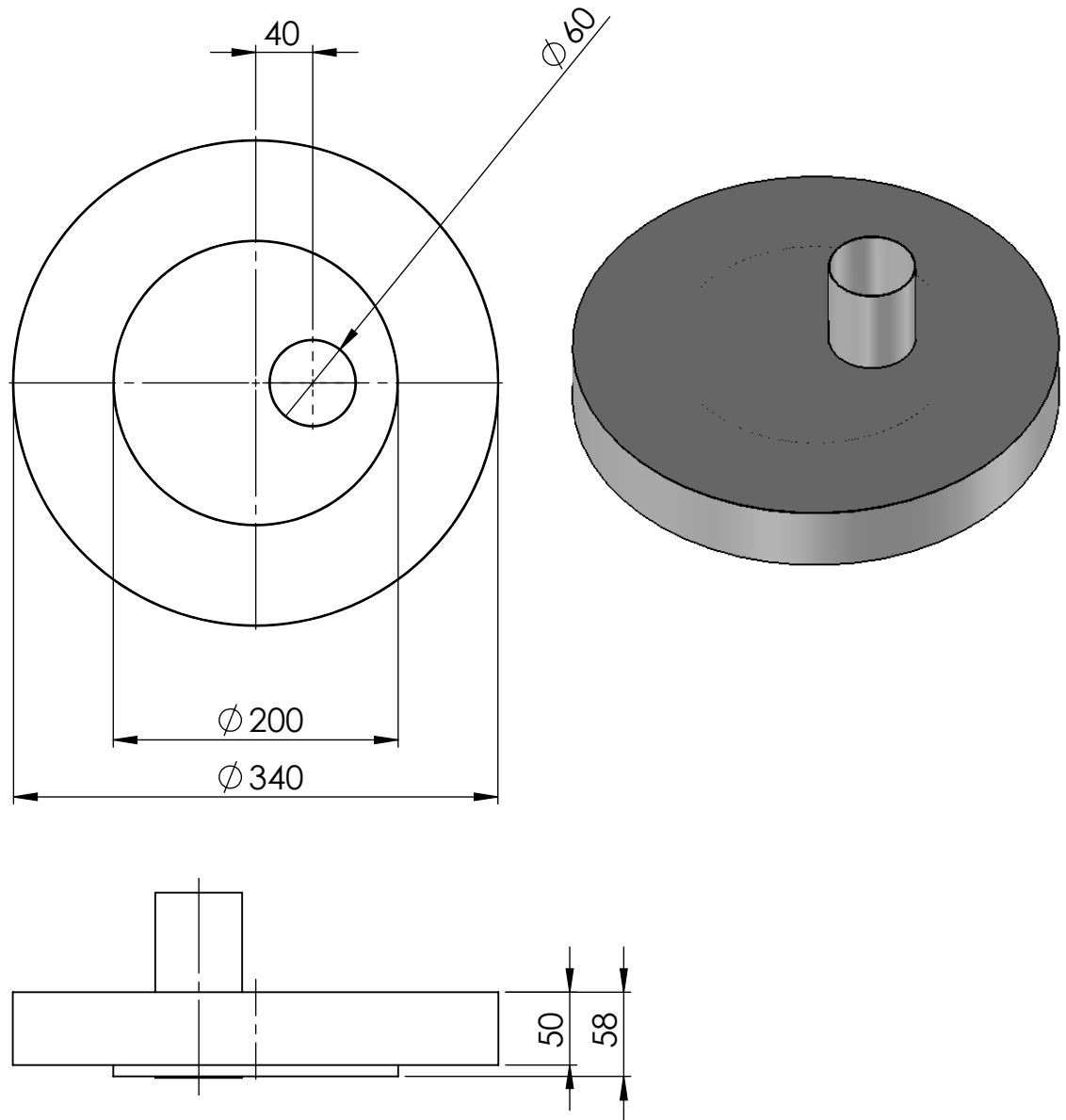
DESAIN RINCI *SUB ASSEMBLY* TRANSMISI POROS



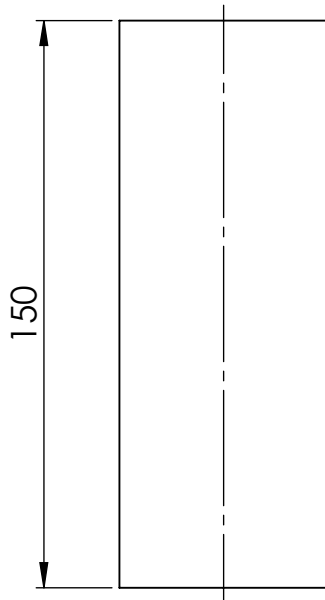
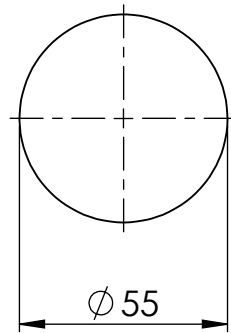
1	POROS						STAINLESS STEEL 304	Ø20 x 650	E1			
JML	NAMA BAGIAN						POS	BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	F
>	0	6	30	120	400	1000	PEKERJAAN LANJUT	NO. ORDER	PROYEKSI 			
<	6	30	120	400	1000	2000						
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2						
SUB ASSEMBLY TRANSMISI								SKALA	DIGAMBAR	18/08/2023	FIKRI	
								1 : 5	DIPERIKSA		ROY	
									DISAHKAN			
POLITEKNIK NEGERI CILACAP, JURUSAN TEKNIK MESIN JL. dr. SOETOMO, NO : 01, SIDAKAYA, CILACAP, 53121 TELP. 0282 - 533329, E-mail : jtm@pnc.ac.id								FORMAT	SATUAN	NO. GAMBAR		
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LAMPIRAN 11

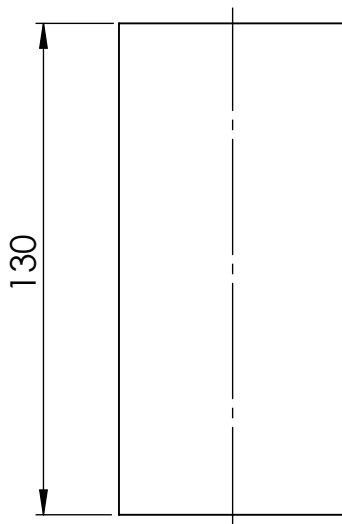
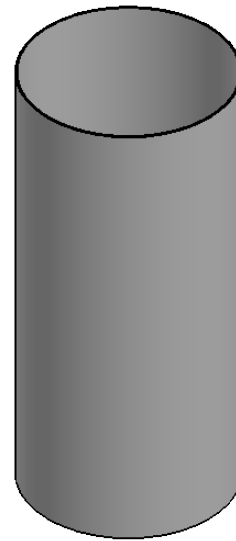
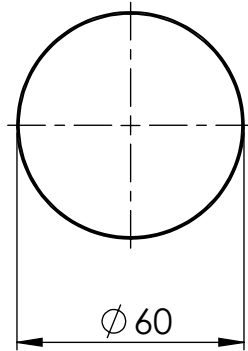
DESAIN RINCI *SUB ASSEMBLY* PENUTUP TABUNG



1	TUTUP TABUNG						ALUMINIUM 1100	Ø340 x 58	F1			
JML	NAMA BAGIAN						POS	BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	F
>	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 TUTUP TABUNG								SKALA	DIGAMBAR	18/08/2023	FIKRI	
								1 : 5	DIPERIKSA		ROY	
									DISAHKAN			
POLITEKNIK NEGERI CILACAP, JURUSAN TEKNIK MESIN JL. dr. SOETOMO, NO : 01, SIDAKAYA, CILACAP, 53121 TELP. 0282 - 533329, E-mail : jtm@pnc.ac.id								FORMAT	SATUAN	NO. GAMBAR		
								A4	mm	MPPK/36		



1	PENEKAN						ALUMINIUM 1100	Ø55 x 150		F2		
JML	NAMA BAGIAN						POS	BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	F
>	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 TUTUP TABUNG								SKALA	DIGAMBAR	18/08/2023	FIKRI	
								1 : 2	DIPERIKSA		ROY	
									DISAHKAN			
POLITEKNIK NEGERI CILACAP, JURUSAN TEKNIK MESIN JL. dr. SOETOMO, NO : 01, SIDAKAYA, CILACAP, 53121 TELP. 0282 - 533329, E-mail : jtm@pnc.ac.id								FORMAT	SATUAN	NO. GAMBAR		
								A4	mm	MPPK/39		

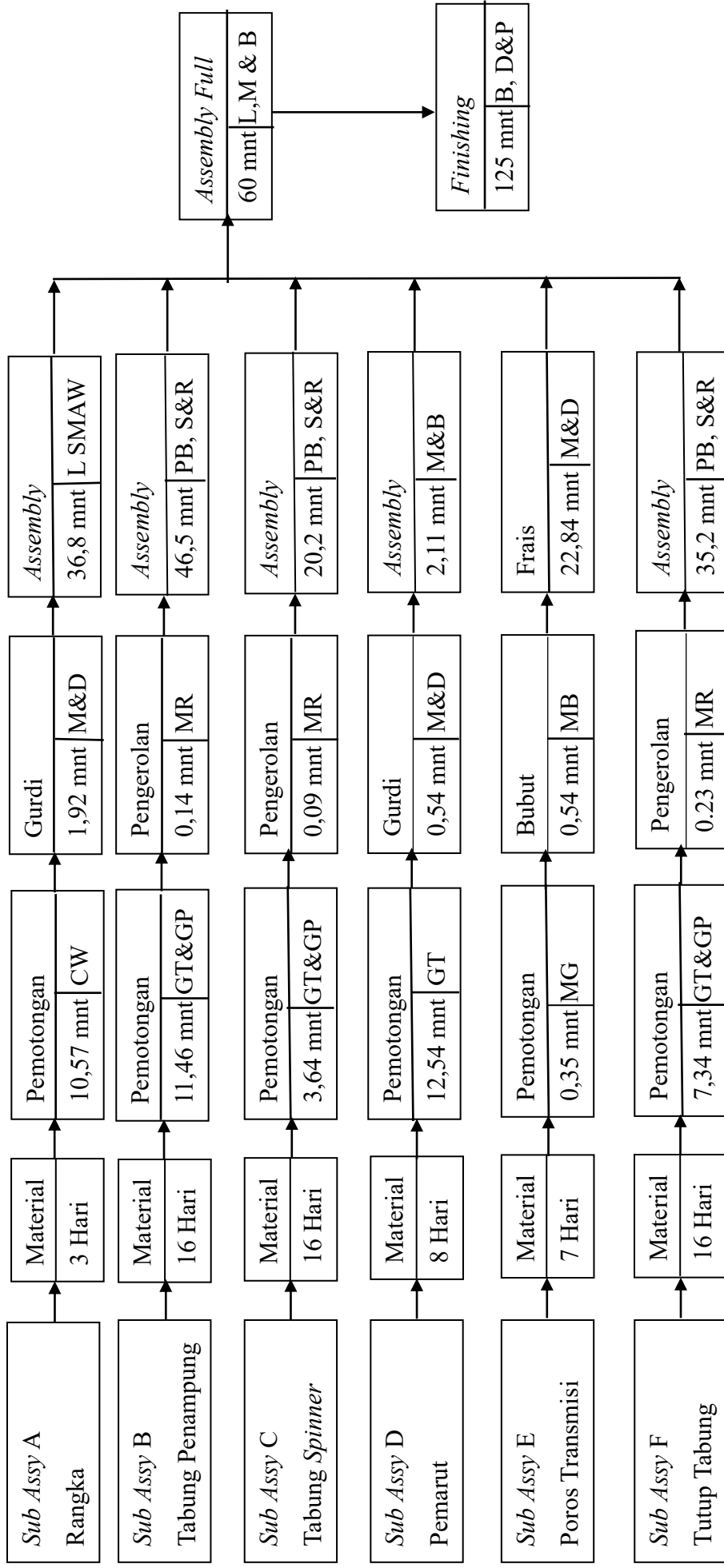


1	JALUR MASUK DAGING KELAPA						ALUMINIUM 1100	$\phi 60 \times 130$	F3			
JML	NAMA BAGIAN						POS	BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	F
>	0	6	30	120	400	1000	PEKERJAAN LANJUT	NO. ORDER	PROYEKSI 			
<	6	30	120	400	1000	2000						
TOL	± 0.1	± 0.2	± 0.3	± 0.5	± 0.8	± 1.2						
SUB ASSEMBLY TUTUP TABUNG								SKALA	DIGAMBAR	18/08/2023	FIKRI	
								1 : 2	DIPERIKSA		ROY	
									DISAHKAN			
POLITEKNIK NEGERI CILACAP, JURUSAN TEKNIK MESIN JL. dr. SOETOMO, NO : 01, SIDAKAYA, CILACAP, 53121 TELP. 0282 - 533329, E-mail : jtm@pnc.ac.id								FORMAT	SATUAN	NO. GAMBAR		
								A4	mm	MPPK/41		

LAMPIRAN 12

ALUR PROSES MESIN PEMARUT DAN PEMERAS KELAPA

ALUR PROSES
MESIN PEMARUT DAN PEMERAS KELAPA



Keterangan :

- CW = Mesin cutting wheel
- M&D = Mesin mill & drill
- L SMAW = Mesin las smaw
- GT&GP = Gerinda Tangan & Gunting Plat
- MR = Mesin Roll
- PB, S&R = Palu Besi, Silikon & Rivet
- GT = Gerinda Tangan
- L, M & B = Lem, Mur & Baut
- M&B = Mur & Baut
- MG = Mesin Gergaji
- MB = Mesin Bubut
- B, D&P = Brust, Dempul & Phyllox

LAMPIRAN 13
BIODATA PENULIS



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Hobi : Naik gunung dan camping
Motto hidup : Tidak ada yang namanya keberuntungan, yang ada hanya usaha.

Riwayat Pendidikan:

1. SMP Negeri 6 Cilacap (2014-2017)
2. SMK Negeri 2 Cilacap (2017-2020)
3. Politeknik Negeri Cilacap (2020-2023)