

LAMPIRAN A
BIODATA PENULIS



Nama : Singgih Bagus Prakoso
Tempat/tanggal lahir : Cilacap, 30 Maret 2001
Alamat : Jalan Krakatau RT03/RW12 Sidanegara, Cilacap
Tengah, Cilacap, Jawa Tengah.
Email : singgihbp3003@gmail.com
Telepon : 0881-2975-395
Motto :“Bahagia bukan milik dia yang hebat dalam segalanya, namun dia yang mampu temukan hal sederhana dalam hidupnya dan tetap bersyukur.”

Riwayat Pendidikan :

Sekolah	Jurusan	Periode
SDN 04 Sidanegara Cilacap	-	2006-2013
SMP Negeri 4 Cilacap	-	2013-2016
SMK Negeri 2 Cilacap	Teknik Instalasi Tenaga Listrik	2016-2019
Politeknik Negeri Cilacap	Teknik Mesin	2019-2023

LAMPIRAN B
TABEL DATA PENDUKUNG PERANCANGAN

Tabel 1 Kuat tarik dan tegangan leleh (SNI, 2002)

Macam Baja	τ_y (kg/mm ²)	τ_u (kg/mm ²)
ST 34	21	34
ST 37	24	37
ST 41	25	41
ST 44	28	44
ST 50	29	50
ST 52	36	52
ST 55	41	55

Tabel 2 Nilai faktor koreksi (Sularso, 2008)

Tipe beban	Jenis penggerak		
	Transmisi hidrolis	Motor listrik atau turbin	Motor bakar dengan penggerak mekanis
Transmisi halus (pengaduk; kipas angin; lampu; konveyor dengan beban merata)	1,0	1,0	1,2
Kejutatan sedang (mesin perkakas, kran, konveyor tugas berat, pengaduk makanan dan gerinda)	1,2	1,3	1,4
Kejutatan berat (mesin pres tumbuk, konveyor dengan putaran mampu balik, transmisi mesin giling rol)	1,4	1,5	1,7

Tabel 3 Harga *Sf1* dan *Sf2* (Sularso,2008)

Jenis Bahan	<i>Sf1</i>	<i>Sf2</i>
Bahan SF dengan kekuatan dijamin	5,6	1,3-3,0
Bahan S-C dan baja paduan	6,0	1,3-3,0

Tabel 4 Faktor koreksi momen poros (Khurmi & Gupta, 2005)

Jenis pembebanan	K_m	K_t
1. Poros tetap		
a) Beban perlahan	1,0	1,0
b) Beban tiba-tiba	1,5 – 2,0	1,5 – 2,0
2. Poros yang berputar		
a) Beban perlahan ataupun tetap	1,5	1,0
b) Beban tiba-tiba - kejutan ringan	1,5 – 2,0	1,5 – 2,0
c) Beban tiba-tiba - kejutan berat	2,0 – 2,0	1,5 – 3,0

Tabel 5 Umur rancangan bantalan yang dianjurkan (Mott,2009)

Aplikasi	Umur Rancangan, L_{10^6} jam
Peralatan rumah tangga	1000 – 2000
Mesin pesawat terbang	1000 – 4000
Otomotif	1500 – 5000
Alat-alat pertanian	3000 – 6000
Elevator, kipas angin industri, gigi persneling	8000 – 15000
Motor listrik, blower industri, mesin industri umum	20000 – 30000
Pompa dan kompresor	40000 – 60000
Peralatan kritis yang beroperasi 24 jam	100000 – 200000

Table 6 Horse power rating (ACA, 2003)

TABLE 7-5 Horsepower ratings—single strand roller chain no. 40

No. of teeth	0.500 inch pitch										Rotational speed of small sprocket, rev/min														
	10	25	50	100	180	200	300	500	700	900	1000	1200	1400	1600	1800	2100	2500	3000	3500	4000	5000	6000	7000	8000	9000
11	0.06	0.14	0.27	0.52	0.91	1.00	1.48	2.42	3.34	4.25	4.70	5.60	6.49	5.57	4.66	3.70	2.85	2.17	1.72	1.41	1.01	0.77	0.61	0.50	0.00
12	0.06	0.15	0.29	0.56	0.99	1.09	1.61	2.64	3.64	4.64	5.13	6.11	7.09	6.34	5.31	4.22	3.25	2.47	1.96	1.60	1.15	0.87	0.69	0.57	0.00
13	0.07	0.16	0.31	0.61	1.07	1.19	1.75	2.86	3.95	5.02	5.56	6.62	7.68	7.15	5.99	4.76	3.66	2.79	2.21	1.81	1.29	0.98	0.78	0.00	0.00
14	0.07	0.17	0.34	0.66	1.15	1.28	1.88	3.08	4.25	5.41	5.98	7.13	8.27	7.99	6.70	5.31	4.09	3.11	2.47	2.02	1.45	1.10	0.87	0.00	0.00
15	0.08	0.19	0.36	0.70	1.24	1.37	2.02	3.30	4.55	5.80	6.41	7.64	8.86	8.86	7.43	5.89	4.54	3.45	2.74	2.24	1.60	1.22	0.97	0.00	0.00
16	0.08	0.20	0.39	0.75	1.32	1.46	2.15	3.52	4.86	6.18	6.84	8.15	9.45	9.76	8.18	6.49	5.00	3.80	3.02	2.47	1.77	1.34	1.00	0.00	0.00
17	0.09	0.21	0.41	0.80	1.40	1.55	2.29	3.74	5.16	6.57	7.27	8.66	10.04	10.69	8.96	7.11	5.48	4.17	3.31	2.71	1.94	1.47	1.00	0.00	0.00
18	0.09	0.22	0.43	0.84	1.48	1.64	2.42	3.96	5.46	6.95	7.69	9.17	10.63	11.65	9.76	7.75	5.97	4.54	3.60	2.95	2.11	1.60	1.00	0.00	0.00
19	0.10	0.24	0.46	0.89	1.57	1.73	2.56	4.18	5.77	7.34	8.12	9.66	11.22	12.64	10.59	8.40	6.47	4.92	3.91	3.20	2.29	1.60	0.09	0.00	0.00
20	0.10	0.25	0.48	0.94	1.65	1.82	2.69	4.39	6.07	7.73	8.55	10.18	11.81	13.42	11.44	9.07	6.99	5.31	4.22	3.45	2.47	1.77	1.00	0.00	0.00
21	0.11	0.26	0.51	0.98	1.73	1.91	2.83	4.61	6.37	8.11	8.98	10.69	12.40	14.10	12.30	9.76	7.52	5.72	4.54	3.71	2.65	1.88	1.00	0.00	0.00
22	0.11	0.27	0.53	1.03	1.81	2.01	2.96	4.83	6.68	8.50	9.40	11.20	12.99	14.77	13.19	10.47	8.06	6.13	4.87	3.98	2.85	2.00	1.00	0.00	0.00
23	0.12	0.28	0.56	1.08	1.90	2.10	3.10	5.05	6.98	8.89	9.83	11.71	13.58	15.44	14.10	11.19	8.62	6.55	5.20	4.26	3.05	2.00	1.00	0.00	0.00
24	0.12	0.30	0.58	1.12	1.98	2.19	3.23	5.27	7.28	9.27	10.26	12.22	14.17	16.11	15.03	11.93	9.18	6.99	5.54	4.54	3.20	2.29	1.00	0.00	0.00
25	0.13	0.31	0.60	1.17	2.06	2.28	3.36	5.49	7.59	9.66	10.69	12.73	14.76	16.78	15.98	12.68	9.76	7.43	5.89	4.82	3.45	2.47	1.00	0.00	0.00
26	0.13	0.32	0.63	1.22	2.14	2.37	3.50	5.71	7.89	10.04	11.11	13.24	15.35	17.45	16.95	13.45	10.36	7.88	6.25	5.12	3.71	2.65	1.00	0.00	0.00
28	0.14	0.35	0.67	1.31	2.31	2.55	3.77	6.15	8.50	10.82	11.97	14.26	16.53	18.79	18.94	15.03	11.57	8.80	6.99	5.72	4.00	2.00	1.00	0.00	0.00
30	0.15	0.37	0.72	1.41	2.47	2.74	4.04	6.59	9.11	11.59	12.82	15.28	17.71	20.14	21.01	16.67	12.84	9.76	7.75	6.34	4.00	2.00	1.00	0.00	0.00
32	0.16	0.40	0.77	1.50	2.64	2.92	4.31	7.03	9.71	12.38	13.68	16.30	18.89	21.48	23.14	18.37	14.14	10.76	8.54	1.41	0.00	0.00	0.00	0.00	0.00
35	0.18	0.43	0.84	1.64	2.88	3.19	4.71	7.69	10.62	13.52	14.96	17.82	20.67	23.49	26.30	21.01	16.17	12.30	9.76	0.00	0.00	0.00	0.00	0.00	0.00
40	0.21	0.50	0.96	1.87	3.30	3.65	5.38	8.79	12.14	15.45	17.10	20.37	23.62	26.85	30.06	25.67	19.76	15.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.23	0.56	1.08	2.11	3.71	4.10	6.08	9.89	13.66	17.39	19.24	22.92	26.57	30.20	33.82	30.63	23.58	5.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Type A: Manual or drip lubrication
 Type B: Bath or disc lubrication
 Type C: Oil stream lubrication

Source: American Chain Association, Naples, FL.

LAMPIRAN C

KATALOG RANTAI SPROCKET DAN PILLOW BLOCK

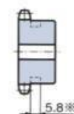
Tabel 1 Katalog sprocket RS 40 (Tsubaki, 2018)

		Standard Roller Chains														
		RS40 Sprocket														
		Mechanically machined 1B type		Welded construction 1C type		Mechanically machined 2B type		Welded construction 2B type		Welded construction 2C type		1A type				
Number of Teeth	Pitch Diameter (Dp) [mm]	Bore Diameter (d) [mm]		Hub		Bore Diameter (d) [mm]		Hub		Bore Diameter (d) [mm]		Hub				
		Minimum	Maximum	Single (D _{h1}) [mm]	Length (L) [mm]	Approx. Mass (kg)	Material	Minimum	Maximum	Single (D _{h1}) [mm]	Length (L) [mm]	Approx. Mass (kg)	Material			
9	37.13	43	9.5	15	28	22	0.10	※							9	
10	41.10	47	9.5	16.5	32	22	0.13	※							10	
11	45.08	51	9.5	20	37	22	0.17	※							11	
12	49.07	55	9.5	22	40	22	0.21	※							12	
13	53.07	59	9.5	20	37	22	0.22		9.5	18	32	35	0.29	16	0.08	13
14	57.07	63	9.5	24	42	22	0.28		12.7	20	37	35	0.36	16	0.10	14
15	61.08	67	9.5	28.5	46	22	0.33		12.7	24	42	35	0.44	16	0.12	15
16	65.10	71	12.7	30	50	22	0.37		12.7	29	46	35	0.53	16	0.14	16
17	69.12	76	12.7	32	54	22	0.44		12.7	30	50	35	0.62	16	0.16	17
18	73.14	80	12.7	35	57	22	0.49		12.7	32	54	35	0.71	16	0.18	18
19	77.16	84	12.7	39.5	62	22	0.57		12.7	35	57	35	0.80	16	0.21	19
20	81.18	88	12.7	45.5	67	25	0.73		12.7	40	62	35	0.93	16	0.24	20
21	85.21	92	12.7	45.5	71	25	0.82		12.7	46	67	40	1.2	16	0.26	21
22	89.24	96	12.7	50	75	25	0.91		12.7	47	71	40	1.3	16	0.29	22
23	93.27	100	12.7	50	77	25	0.98		12.7	50	75	40	1.5	16	0.32	23
24	97.30	104	12.7	42	63	25	0.80		12.7	50	77	40	1.6	16	0.35	24
25	101.33	108	12.7	42	63	25	0.83		12.7	55	83	40	1.8	16	0.39	25
26	105.36	112	12.7	42	63	25	0.87		12.7	59	87	40	2.0	16	0.42	26
27	109.40	116	12.7	42	63	25	0.91		12.7	62	91	40	2.2	16	0.46	27
28	113.43	120	12.7	42	63	25	0.95		12.7	65	95	40	2.4	16	0.50	28
30	121.50	128	12.7	42	63	25	1.0		12.7	67	99	40	2.6	16	0.53	29
32	129.57	137	16	45	68	28	1.3		12.7	73	106	40	3.0	16	0.62	30
34	137.64	145	16	45	68	28	1.4		12.7	78	115	50	4.2	16	0.71	31
35	141.68	149	16	45	68	28	1.4		12.7	84	124	50	4.9	16	0.80	32
36	145.72	153	16	45	68	28	1.5		16	63	93	50	3.9	16	0.85	33
38	153.79	161	16	45	68	28	1.6		16	63	93	50	4.3	16	0.90	34
40	161.87	169	16	45	68	28	1.7		16	63	93	50	4.6	16	1.0	35
42	169.94	177	18	48	73	32	2.0		16	63	93	50	5.0	16	1.1	36
45	182.06	189	18	48	73	32	2.2		16	63	93	50	5.5	16	1.2	37
48	194.18	201	18	48	73	32	2.4		18	63	93	50	6.0	18	1.4	38
50	202.26	209	18	48	73	32	2.5		18	63	93	50	6.5	18	1.6	39
54	218.42	226	18	48	73	32	2.8		18	63	93	50	7.3	18	1.8	40
60	242.66	250	18	48	73	32	3.3		18	63	93	50	8.8	18	2.1	41
65	262.87	270	23	55	83	32	4.0		18	63	93	50	8.8	18	2.6	42
70	283.07	290	23	55	83	32	4.5		23	55	83	50	4.7	23	3.0	43
75	303.28	311	23	55	83	32	5.0		23	55	83	50	5.7	23	3.5	44
									23	55	83	50	5.7	23	4.0	45

- Note: 1. Maximum bore diameter is the typical range. Determine bore diameter and key bearing pressure based on general mechanical design.
 2. Models in shaded areas have hardened teeth.
 3. The outer diameters above are given for the 1B type. Diameters vary slightly for all other types.
 4. 1B-type sprockets marked with an * have an outer groove around the hub. Groove outer diameter is 21 for 9T, 25 for 10T, 30 for 11T and 32 for 12T.
 5. For single-strand sprockets without hardened teeth, the Strong Series of sprocket with hardened teeth can be made-to-order.
 6. Welded specification: machine-structural carbon steel (teeth) and structural rolled steel (hub)

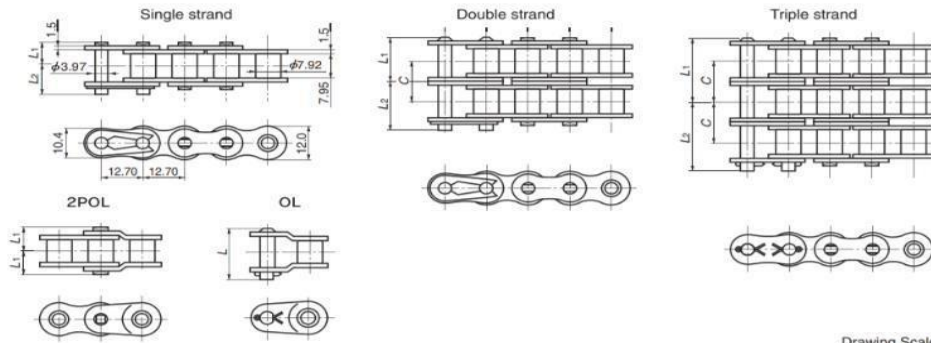
Sprocket Number
 RS40 -2B 15T

Number of teeth
 Type
 Chain number



Tabel 2 Katalog rantai RS 40 (Tsubaki, 2018)

Standard Roller Chains RS Roller Chain
RS40



Drawing Scale 1/1.6

TSUBAKI Chain Number	Number of Strands	Pin Length L1+L2	Dimensions L1	Dimensions L2	Offset Pin Length L	Transverse Pitch C	Pin Type	ANSI Standard Min. Tensile Strength kN(kgf)	Tsubaki Minimum Tensile Strength kN(kgf)	Tsubaki Average Tensile Strength kN(kgf)	Maximum Allowable Load kN(kgf)	Approximate Mass kg/m
RS40-1	1	18.2	8.25	9.95	18.2	14.4	Riveting	15.2 (1550)	17.7 (1800)	19.1 (1950)	3.63 (370)	0.64
RS40-2	2	32.6	15.45	17.15	33.5			30.4 (3100)	35.3 (3600)	38.2 (3900)	6.18 (630)	1.27
RS40-3	3	46.8	22.65	24.15	47.9			45.6 (4650)	53.0 (5400)	57.4 (5850)	9.12 (930)	1.90
RS40-4	4	61.2	29.9	31.3	62.3			-	70.6 (7200)	76.5 (7800)	12.0 (1220)	2.53
RS40-5	5	75.7	37.1	38.6	76.8			-	88.3 (9000)	95.6 (9750)	14.1 (1440)	3.16
RS40-6	6	90.1	44.3	45.8	91.2			-	106 (10800)	115 (11700)	16.7 (1700)	3.79

Note: 1. Maximum allowable load when using a one-pitch offset link (OL) is 65% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
 2. Number of links per unit = 240

■ RS40-1 Maximum Kilowatt Ratings Table (kW Ratings for Single Strand Chain)

Lubrication Type Small Sprocket No. of Teeth	Small Sprocket Max rpm																											
	10	25	50	100	200	300	400	500	700	900	1000	1200	1400	1600	1800	2100	2400	2700	3000	3500	4000	5000	6000	7000	8000			
9	0.07	0.15	0.28	0.52	0.97	1.40	1.81	2.21	3.00	3.75	3.75	3.75	3.75	3.07	2.58	2.04	1.67	1.40	1.20	0.95	0.78	0.56	0.42	0.34	0.27			
10	0.07	0.17	0.31	0.58	1.09	1.57	2.03	2.48	3.36	4.21	4.40	4.40	4.40	3.60	3.02	2.39	1.96	1.64	1.40	1.11	0.91	0.65	0.50	0.39	0.32			
11	0.08	0.19	0.35	0.65	1.21	1.74	2.25	2.75	3.72	4.67	5.07	5.07	5.07	4.15	3.48	2.76	2.26	1.89	1.62	1.28	1.05	0.75	0.57	0.45	0.37			
12	0.09	0.20	0.38	0.71	1.32	1.91	2.47	3.02	4.09	5.13	5.64	5.67	5.67	4.73	3.97	3.15	2.58	2.16	1.84	1.46	1.20	0.86	0.65	0.52	0.42			
13	0.10	0.22	0.41	0.77	1.44	2.08	2.69	3.29	4.46	5.59	6.15	6.18	6.18	5.34	4.47	3.55	2.90	2.43	2.08	1.65	1.35	0.97	0.73	0.58	0.48			
14	0.11	0.24	0.45	0.84	1.56	2.25	2.92	3.57	4.83	6.06	6.66	6.70	6.70	5.96	5.00	3.97	3.25	2.72	2.32	1.84	1.51	1.08	0.82	0.65	0.53			
15	0.11	0.26	0.48	0.90	1.69	2.43	3.14	3.84	5.20	6.52	7.17	7.21	7.21	6.61	5.54	4.40	3.60	3.02	2.58	2.04	1.67	1.20	0.91	0.72	0.59			
16	0.12	0.28	0.52	0.97	1.81	2.60	3.37	4.12	5.58	7.00	7.69	7.74	7.74	7.28	6.10	4.84	3.97	3.32	2.84	2.25	1.84	1.32	1.00	0.80	0.65			
17	0.13	0.30	0.55	1.03	1.93	2.78	3.60	4.40	5.96	7.47	8.21	8.26	8.26	7.98	6.69	5.31	4.34	3.64	3.11	2.47	2.02	1.44	1.10	0.87	0.71			
18	0.14	0.32	0.59	1.10	2.05	2.96	3.83	4.68	6.34	7.94	8.73	8.79	8.79	8.69	7.28	5.78	4.73	3.97	3.39	2.69	2.20	1.57	1.20	0.95				
19	0.15	0.33	0.62	1.17	2.18	3.13	4.06	4.96	6.72	8.42	9.26	9.43	9.43	9.43	7.90	6.27	5.13	4.30	3.67	2.91	2.38	1.71	1.30	1.03				
20	0.16	0.35	0.66	1.23	2.30	3.31	4.29	5.24	7.10	8.90	9.79	10.2	10.2	10.2	8.53	6.77	5.54	4.64	3.97	3.15	2.58	1.84	1.40	1.11				
21	0.16	0.37	0.70	1.30	2.42	3.49	4.52	5.53	7.48	9.38	10.3	11.0	11.0	11.0	9.18	7.28	5.96	5.00	4.27	3.39	2.77	1.98	1.51	1.20				
22	0.17	0.39	0.73	1.37	2.55	3.67	4.76	5.81	7.87	9.87	10.8	11.7	11.7	11.7	9.84	7.81	6.39	5.36	4.57	3.63	2.97	2.13	1.62	1.28				
23	0.18	0.41	0.77	1.43	2.67	3.85	4.99	6.10	8.26	10.4	11.4	12.6	12.6	12.6	10.5	8.35	6.83	5.73	4.89	3.88	3.18	2.27	1.73	1.37				
24	0.19	0.43	0.80	1.50	2.80	4.03	5.22	6.39	8.65	10.8	11.9	13.4	13.4	13.4	11.2	8.90	7.28	6.10	5.21	4.14	3.39	2.42	1.84	1.46				
25	0.20	0.45	0.84	1.57	2.93	4.21	5.46	6.67	9.03	11.3	12.5	14.1	14.1	14.1	11.9	9.46	7.74	6.49	5.54	4.40	3.60	2.58	1.96					
26	0.21	0.47	0.88	1.64	3.05	4.40	5.70	6.96	9.43	11.8	13.0	14.7	14.7	14.7	12.6	10.0	8.21	6.88	5.88	4.66	3.82	2.73	2.08					
28	0.22	0.51	0.95	1.77	3.31	4.76	6.17	7.54	10.2	12.8	14.1	16.0	16.0	16.0	14.1	11.2	9.18	7.69	6.57	5.21	4.27	3.05	2.32					
30	0.24	0.55	1.02	1.91	3.56	5.13	6.65	8.13	11.0	13.8	15.2	17.2	17.2	17.2	15.7	12.4	10.2	8.53	7.28	5.78	4.73	3.39	2.58					
32	0.26	0.59	1.10	2.05	3.82	5.50	7.13	8.71	11.8	14.8	16.3	18.4	18.4	18.4	17.3	13.7	11.2	9.40	8.03	6.37	5.21	3.73						
35	0.28	0.65	1.21	2.26	4.21	6.06	7.85	9.60	13.0	16.3	17.9	20.3	20.3	20.3	19.8	15.7	12.8	10.8	9.18	7.28	5.96	4.27						
40	0.33	0.75	1.40	2.60	4.86	7.00	9.07	11.1	15.0	18.8	20.7	24.1	24.1	24.1	24.1	19.2	15.7	13.1	11.2	8.90	7.28	5.21						
45	0.37	0.85	1.59	2.96	5.52	7.95	10.3	12.6	17.0	21.4	23.5	27.7	28.8	28.8	28.8	22.9	18.7	15.7	13.4	10.6	8.69							

Note: 1. kW rating when using a one-pitch offset link (OL) is 80% of the above. Two pitch offset links (2POL) can be used at 100% of the above values.
 2. Please contact a Tsubaki representative prior to use of kW ratings in the colored area of the table.

Multi-strand factor	Number of chain strands	Multi-strand factor	Number of chain strands	Multi-strand factor
	Double strand	1.7	Quintuple strand	3.9
	Triple strand	2.5	Sextuple strand	4.6
	Quadruple strand	3.3	-	-

Lubrication method	A	Manual lubrication or drip lubrication	Details on Pg. 193
	B	Oil bath or slinger disc lubrication	
	C	Forced pump lubrication	

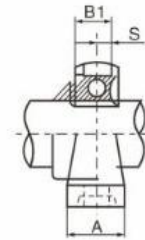
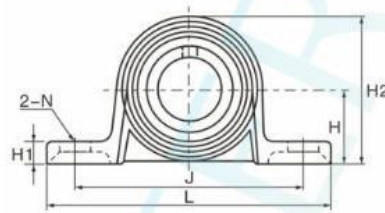
Tabel 3 Katalog *pillow block* KP (NCMaster, 2015)

KP 000 series

KP 000C (E) series

KP000

KP000C (E)

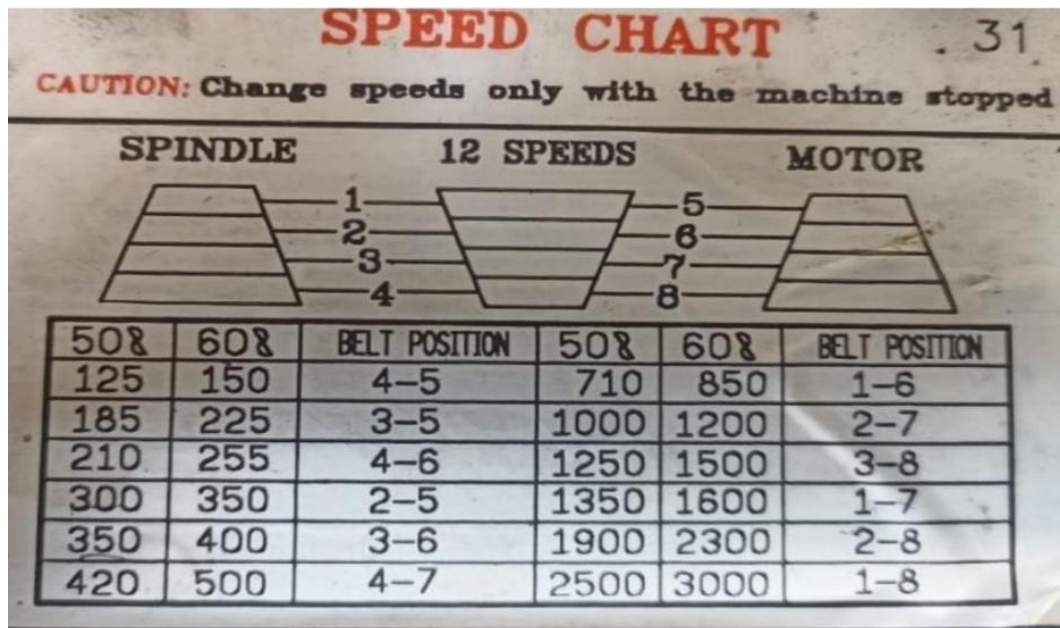


Bearing Unit No	Shaft Dia	Dimensions (mm)											Bolt Used
	d	H	L	J	A2	N	H1	H2	B	S	C1	Zs	
	(mm)												
KP08	8	16	55	42	12	4,5	5	30	12	3	5	30	M5
KP000	10	18	67	53	16	7	6	35	14	4	5,56	33	M6
KP001	12	19	71	56	16	7	6	38	14,5	4	5	33	M6
KP002	15	22	80	63	16	7	7	43	16,5	4,5	4	34	M6
KP003	17	24	85	67	18	7	7	47	17,5	5	5,5	38	M6
KP004	20	28	100	80	20	10	9	55	21	6	7	46	M8
KP005	25	32	112	90	20	10	10	62	22,5	6	6	47	M8
KP006	30	36	132	106	26	13	11	70	24,5	6,5	6	50	M10
KP007	35	42	150	118	33	13	14	76	33	8	8	55	M12

Bearing No	Housign No	Unit No	Stainless steel cover No.		weight (kg)	
		Open (closed)	Open	Closed	Normal	With cover
K000	P000	P000C (E)	000CP10	000CPE	70	78
K001	P001	P001C (E)	001CP12	001CPE	80	89
K002	P002	P002C (E)	002CP15	002CPE	120	130
K003	P003	P003C (E)	003CP17	003CPE	140	154
K004	P04-5	P004C (E)	04-5CP20	04-5CPE	210	230
K005	P05-6	P005C (E)	05-6CP25	05-6CPE	270	291
K006	P06-7	P006C (E)	06-7CP30	06-7CPE	410	436
K007	P07-8	P007C (E)	07-8CP35	07-8CPE	550	585

LAMPIRAN D
TABEL DATA PEMESINAN

Tabel 1 Putaran mesin gurdi



Tabel 2 Kecepatan potong proses bubut rata dan proses bubut ulir untuk pahat HSS (Widiarto, 2008)

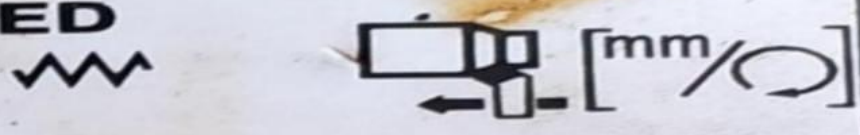

MATERIAL	STRAIGHT TURNING SPEED		THREADING SPEED	
	FEET PER MINUTE	METERS PER MINUTE	FEET PER MINUTE	METERS PER MINUTE
LOW-CARBON STEEL	80-100	24.4-30.5	35-40	10.7-12.2
MEDIUM-CARBON STEEL	60-80	18.3-24.4	25-30	7.6-9.1
HIGH-CARBON STEEL	35-40	10.7-12.2	15-20	4.6-6.1
STAINLESS STEEL	40-50	12.2-15.2	15-20	4.6-6.1
ALUMINUM AND ITS ALLOYS	200-300	61.0-91.4	50-80	15.2-18.3
ORDINARY BRASS AND BRONZE	100-200	30.5-61.0	40-50	12.2-15.2
HIGH-TENSILE BRONZE	40-60	12.2-18.3	20-25	6.1-7.6
CAST IRON	50-80	15.2-24.4	20-25	6.1-7.6
COPPER	60-80	18.3-24.4	20-25	6.1-7.6

NOTE: Speeds for carbide-tipped bits can be 2 to 3 times the speed recommended for high-speed steel

Tabel 3 Putaran mesin bubut

	1	2	3
A	60	220	860
B	92	360	1400
C	140	530	2000

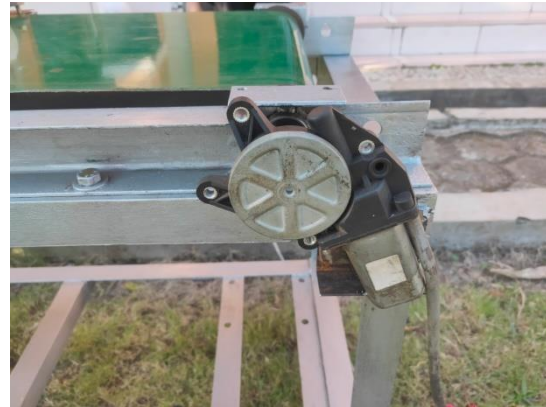
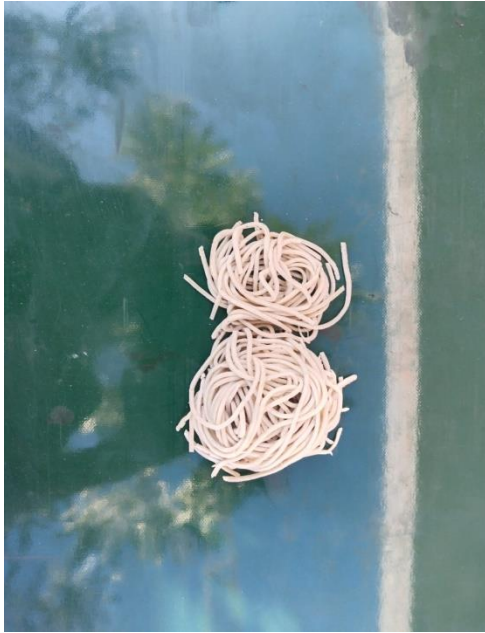
Tabel 4 Gerak makan mesin bubut

LONGITUDINAL FEED				
				
	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

Tabel 5 Data material, kecepatan potong, sudut mata bor HSS dan cairan pendingin proses gurdi (Widiarto dkk, 2008)

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

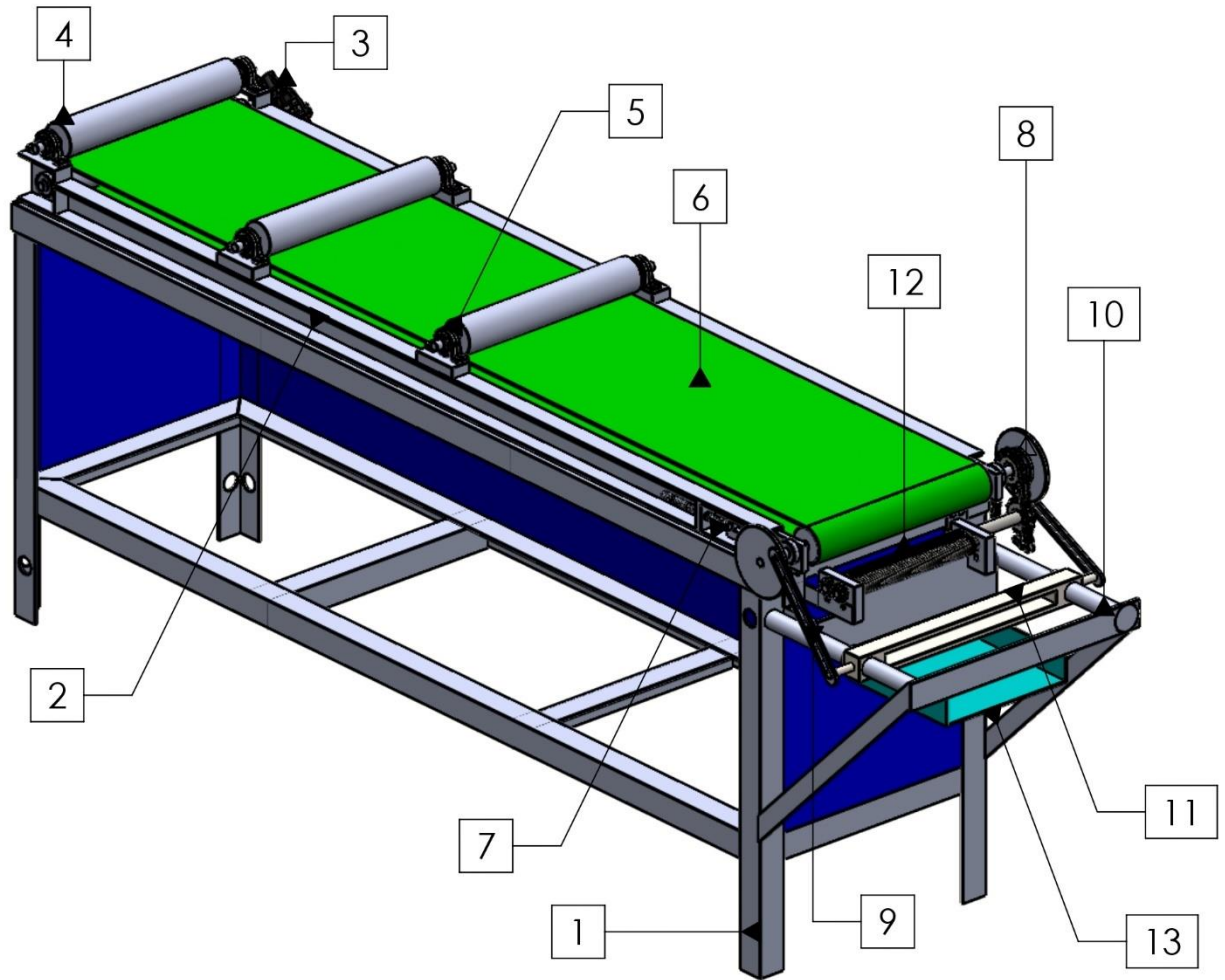
LAMPIRAN E
DOKUMENTASI



LAMPIRAN F***BILL OF MATERIAL***

No	Nama Material	Jumlah	Harga Satuan	Total Harga
1.	Besi siku	3 buah	Rp 110.000/6 meter	Rp 330.000
2.	Elektroda RB	1 bungkus	Rp 40.000 / 1kg	Rp 40.000
3.	Mata gerinda	5 buah	Rp 5.000 / buah	Rp 25.000
4.	Besi Unp	1 buah	Rp 215.000/ 6 Meter	Rp 215.000
5.	Mc Nylon Rod D30	1 buah	Rp 120.000/ meter	Rp 120.000
6.	Bantalan bearing	8 buah	Rp 44.000/ buah	Rp 352.000
7.	Rantai dan <i>sprocket</i>	1 buah	Rp 100.000/ buah	Rp 100.000
8.	<i>Power supply</i>	1 buah	Rp 55.000 / buah	Rp 55.000
9.	Belt conveyor	3 meter	Rp. 50.000/ meter	Rp 150.000
10.	Plat stainless 2 mm	3 m x 2 m	Rp 300.000/ 1,5 meter	Rp 600.000
11.	Motor listrik DC	1 buah	Rp 170.000/buah	Rp 170.000
12.	Besi silinder ass	2 buah	Rp 44.000/ 2 meter	Rp 44.000
13.	Dimmer DC	1 buah	Rp 36.000/buah	Rp 36.000
14.	Pemotong	1 buah	Rp 295.000/buah	Rp 295.000
Jumlah total				Rp 2.532.000

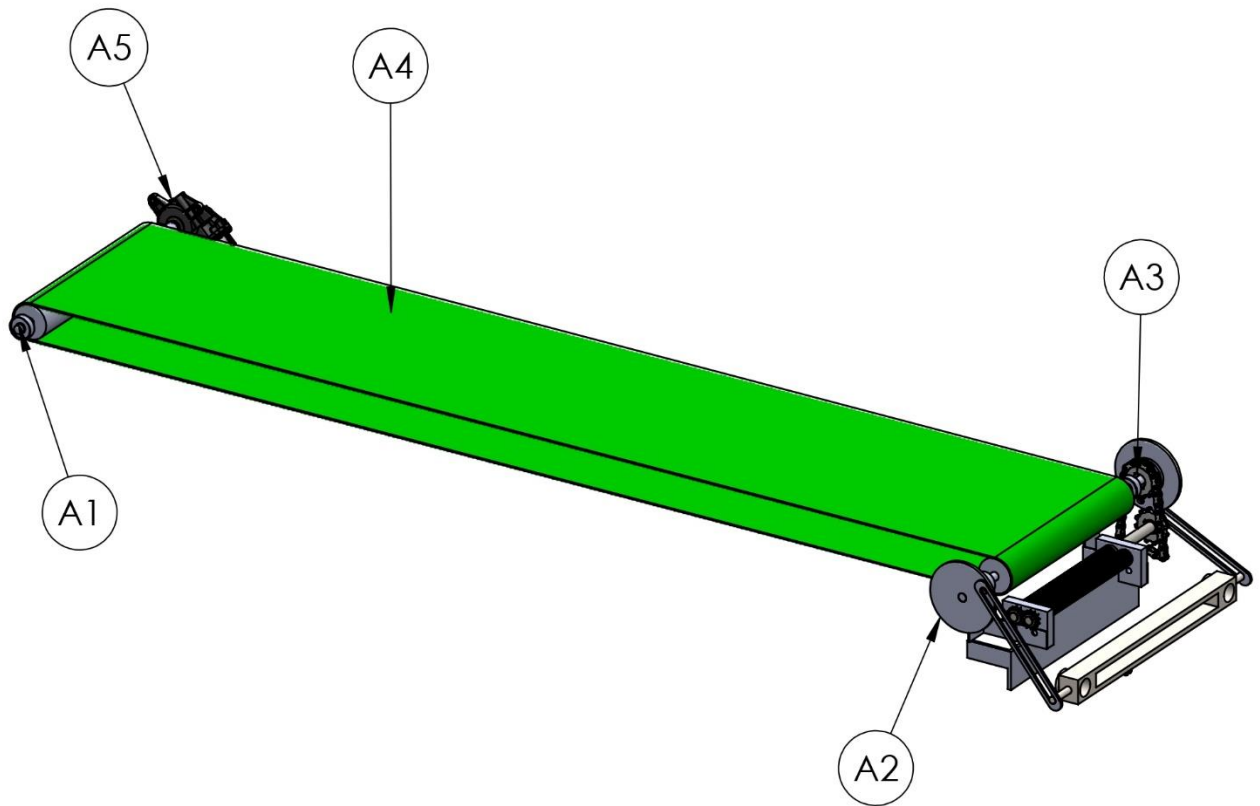
LAMPIRAN G GAMBAR KERJA



No	Part	Description	Dimension	Qty
1	Rangka	St37	1500x400x600	1
2	U-Kanal	St37	1500x30	2
3	Motor power window			1
4	Roll pemipih	Nylon	300x50	3
5	Bearing			10
6	Belt conveyer	PVC	1500x300	1
7	Adjuster conveyer	St37	150x40	2
8	Sproket			2
9	Poros engkol			2
10	Rel pisau pemotong			2
11	Pisau pemotong panjang			1
12	Pisau pemotong keriting			1
13	landasan mie			1

JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	Pengerjaan Lanjut		NO. ORDER		
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					

MESIN PEMIPIH DAN PEMOTONG ADONAN MIE OTOMATIS	SKALA 1:10	DIGAMBAR		Singgih B.P
		DIPERIKSA		
		DISAHKAN		
POLITEKNIK NEGERI CILACAP		FORMAT A4	NO. GAMBAR No.01/TM	

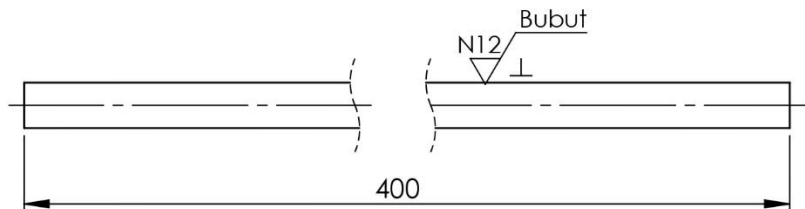
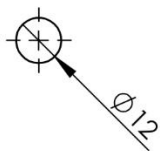
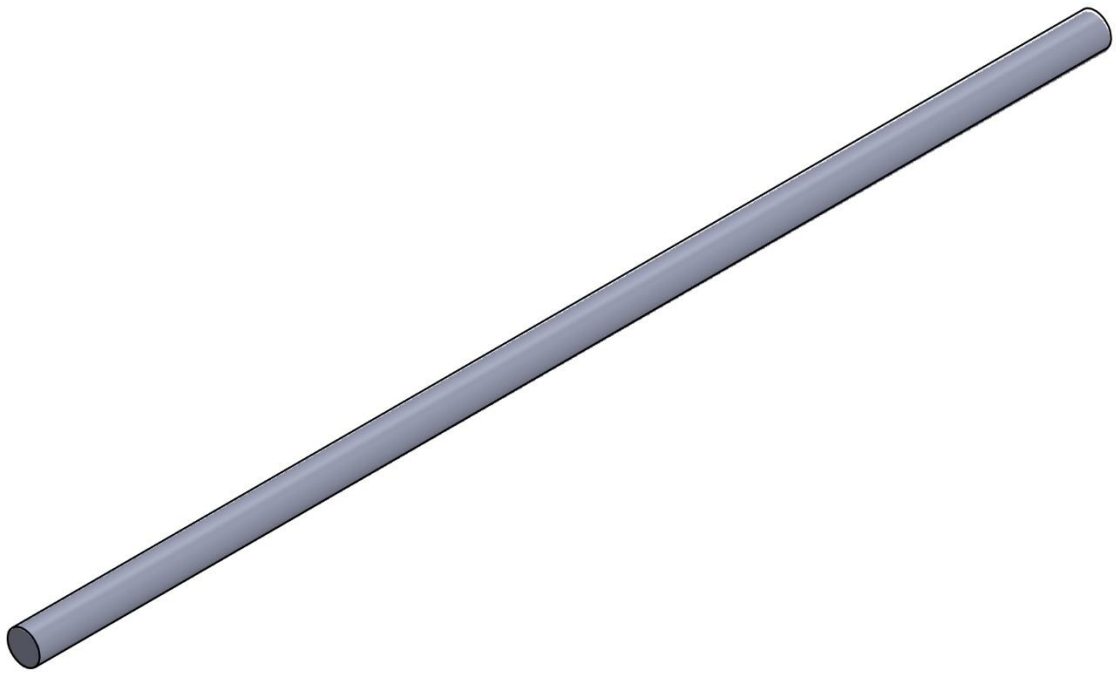


1	MOTOR POWER WINDOW					A5	ORDER
1	BELT CONVEYOR	PVC	LIHAT DETAIL			A4	ORDER
2	RANTAI DAN SPROKET		LIHAT DETAIL			A3	ORDER
2	RODA ENKOL	MILD STEEL	LIHAT DETAIL			A2	DIBUAT
2	POROS TRANSMISI	S45C	LIHAT DETAIL			A1	DIBUAT

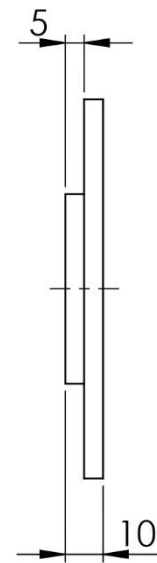
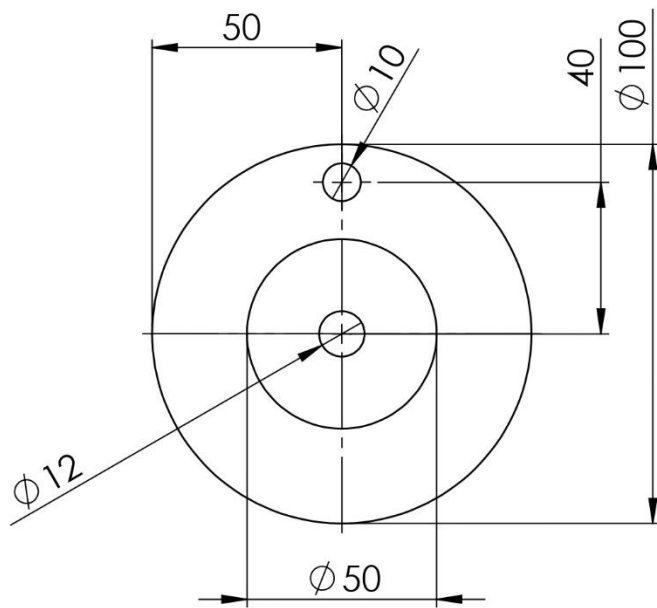
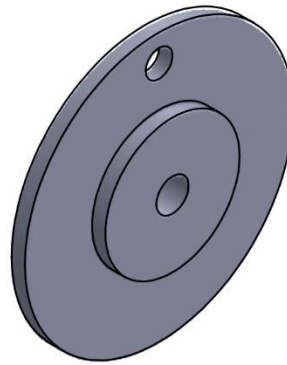
JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	Pengerjaan Lanjut		NO. ORDER		
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					

SISTEM TRANSMISI	SKALA 1:10	DIGAMBAR		Singgih B.P
		DIPERIKSA		
		DISAHKAN		

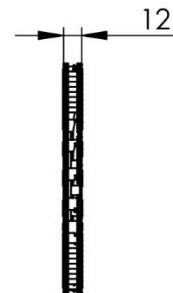
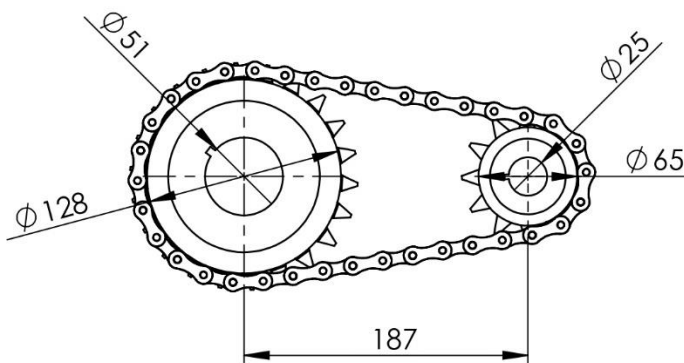
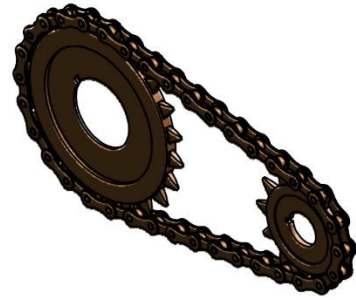
	POLITEKNIK NEGERI CILACAP	FORMAT A4	NO. GAMBAR No.02/TM
--	----------------------------------	---------------------	------------------------



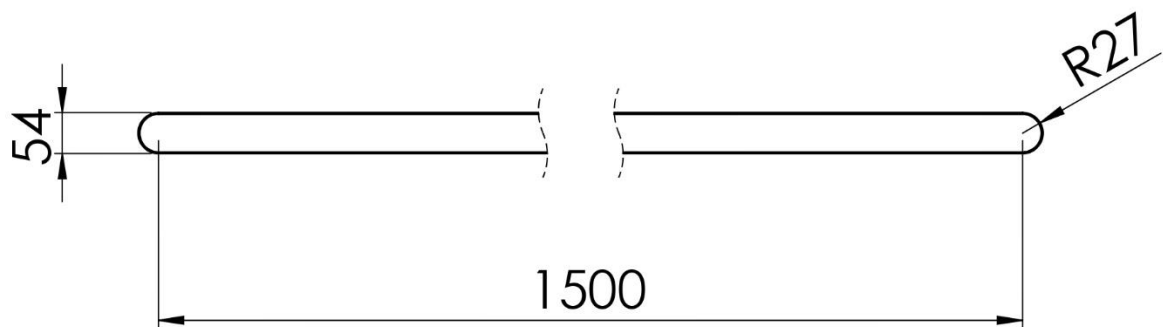
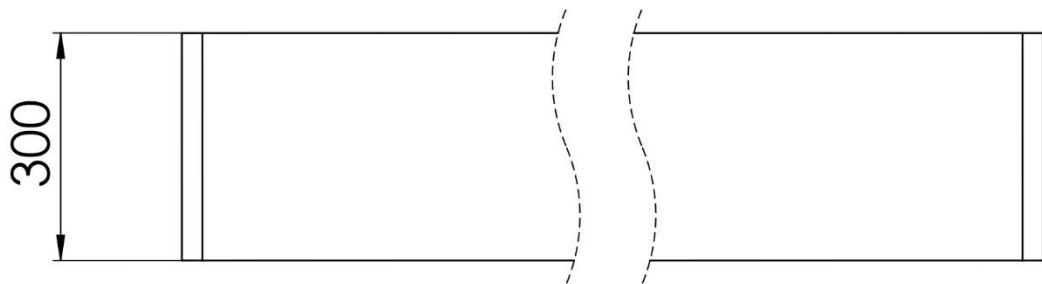
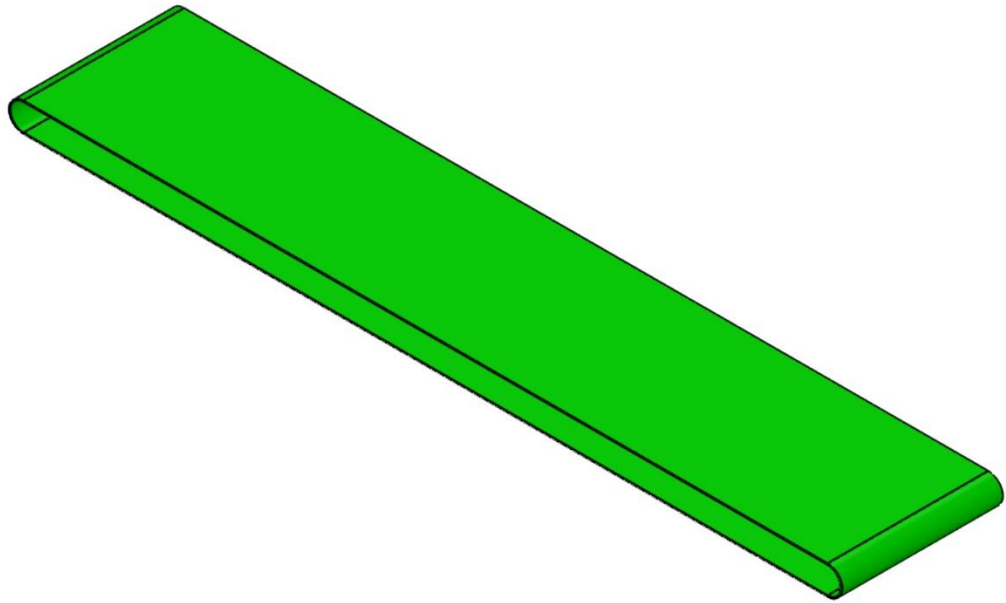
1	POROS TRANSMISI					S45C			A1	DIBUAT
JML	NAMA BAGIAN					BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	Pengerjaan Lanjut	NO. ORDER		Singgih B.P
<	6	30	120	400	1000	2000				
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2				
<h1>POROS TRANSMISI</h1>								SKALA 1:2	DIGAMBAR	
									DIPERIKSA	
									DISAHKAN	
POLITEKNIK NEGERI CILACAP								FORMAT A4	NO. GAMBAR No.03/TM	



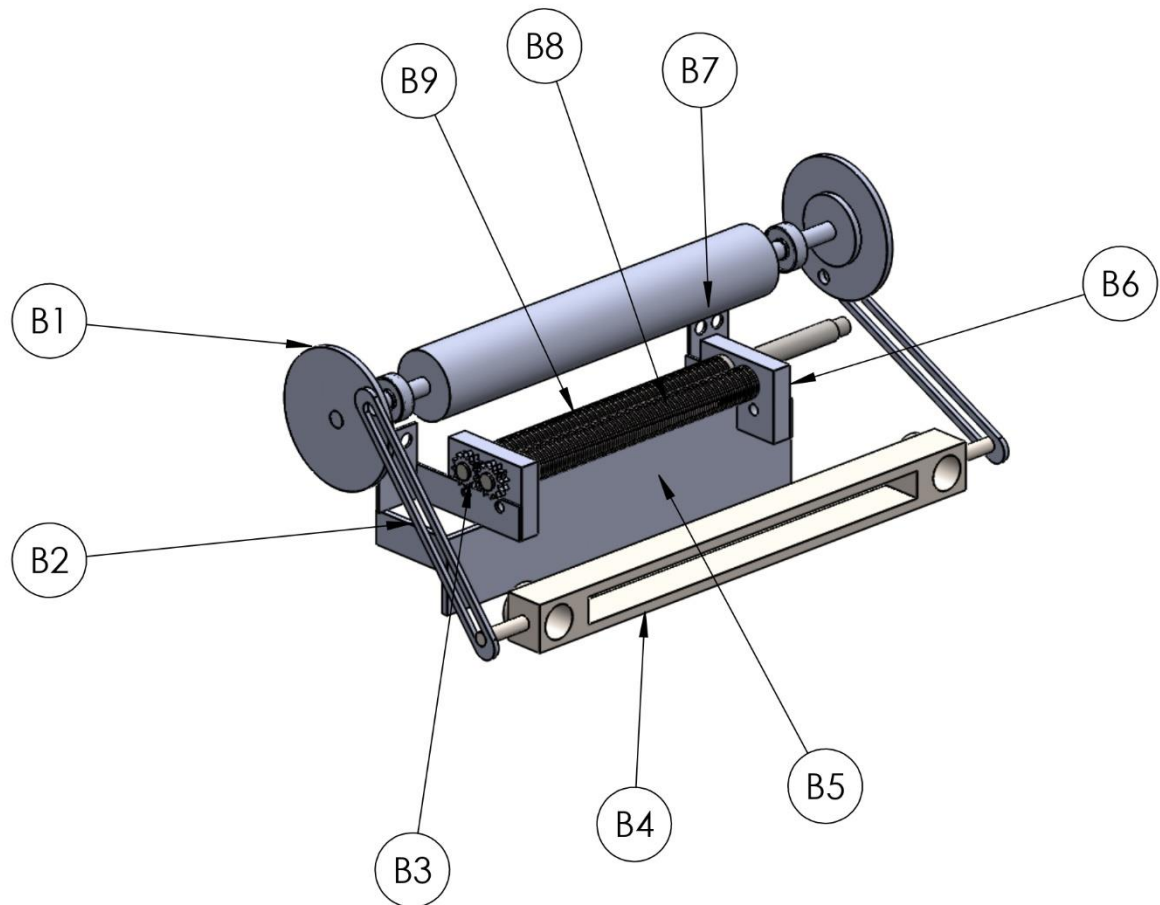
2	RODA ENGKOL	S45C	LIHAT DETAIL	-	A2	PRODUKSI	
JML	NAMA BAGIAN	BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN	
>	0	6	30	120	400	1000	Pengerjaan Lanjut NO. ORDER
<	6	30	120	400	1000	2000	
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	
<h1>RODA ENGKOL</h1>				SKALA	DIGAMBAR	Singgih B.P	
				1:2	DIPERIKSA		
					DISAHKAN		
POLITEKNIK NEGERI CILACAP				FORMAT	NO. GAMBAR		
				A4	No.04/TM		



1	RANTAI DAN SPROKET									A3	ORDER
JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	Pengerjaan Lanjut		NO. ORDER		
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
<h1>RANTAI DAN SPROKET</h1>									SKALA	DIGAMBAR	Singgih B.P
									1:5	DIPERIKSA	
										DISAHKAN	
POLITEKNIK NEGERI CILACAP									FORMAT	NO. GAMBAR	
									A4	No.05/TM	



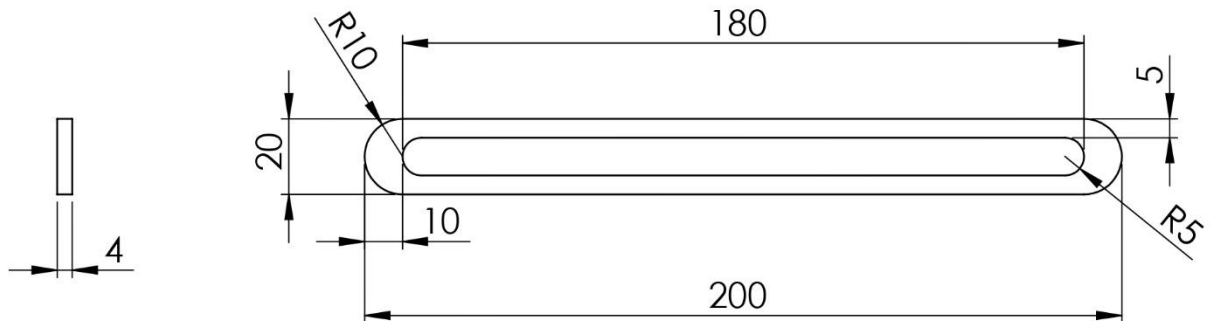
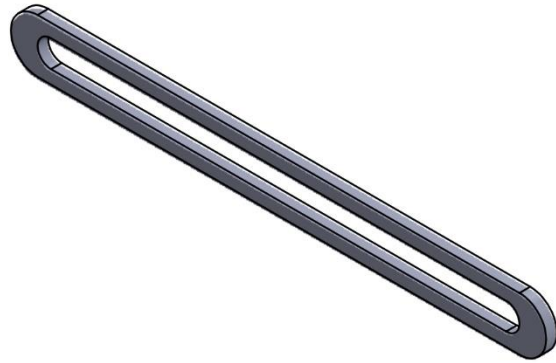
1	BELT CONVEYOR					PVC			A4	ORDER	
JML	NAMA BAGIAN					BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN	
>	0	6	30	120	400	1000	Pengerjaan Lanjut	NO. ORDER	PROYEKSI Singgih B.P		
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
<h1>BELT CONVEYOR</h1>								SKALA 1:10	DIGAMBAR		
									DIPERIKSA		
									DISAHKAN		
POLITEKNIK NEGERI CILACAP								FORMAT A4	NO. GAMBAR No.06/TM		



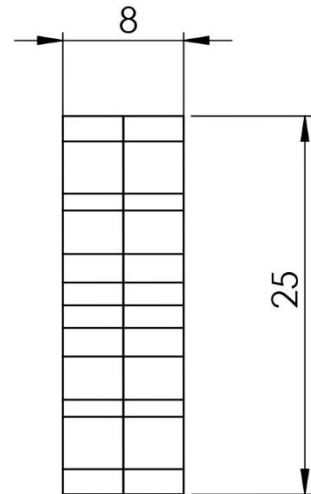
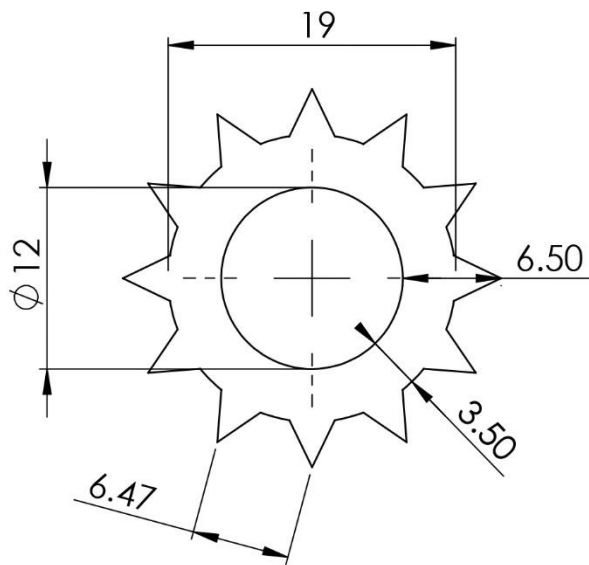
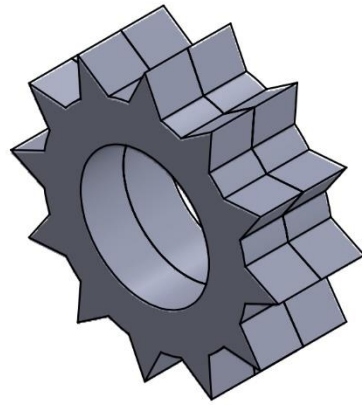
1	POROS PEMOTONG 2	SS	LIHAT DETAIL		B9	ORDER
1	POROS PEMOTONG 1	SS	LIHAT DETAIL		B8	ORDER
2	PLAT DUDUKAN PEMOTONG	MILD STEEL	LIHAT DETAIL		B7	PRODUKSI
2	DUDUKAN POROS PEMOTONG	Mild steel	LIHAT DETAIL		B6	PRODUKSI
1	PLAT PENGHANTAM PISAU PEMOTONG	MILD STEEL	LIHAT DETAIL		B5	PRODUKSI
1	PISAU PEMOTONG	SS	LIHAT DETAIL		B4	PRODUKSI
2	RODA GIGI		LIHAT DETAIL		B3	ORDER
2	TUAS ENKOL	MILD STEEL	LIHAT DETAIL		B2	PRODUKSI
2	RODA ENKOL	S45C	LIHAT DETAIL		B1	PRODUKSI

JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	Pengerjaan Lanjut		NO. ORDER		
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					

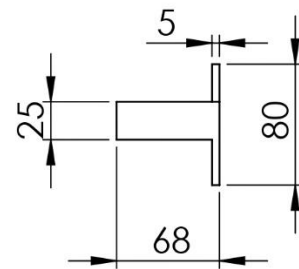
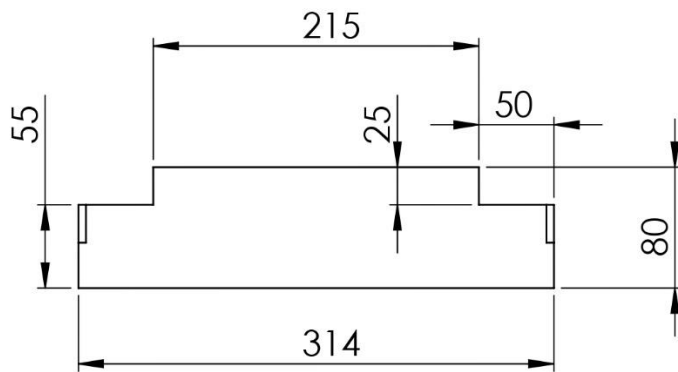
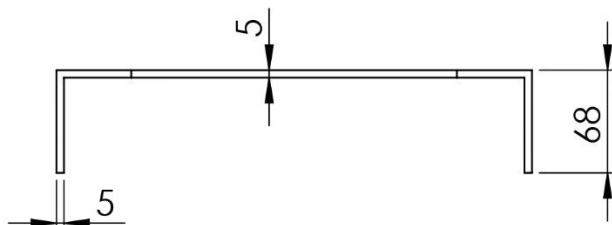
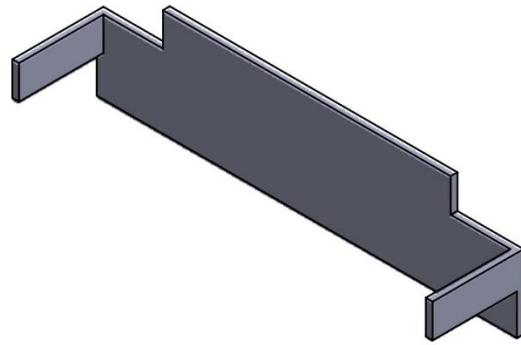
<h1>SISTEM PEMOTONG</h1>	SKALA 1:5	DIGAMBAR		Singgih B.P
		DIPERIKSA		
		DISAHKAN		
POLITEKNIK NEGERI CILACAP		FORMAT A4	NO. GAMBAR No.07/TM	



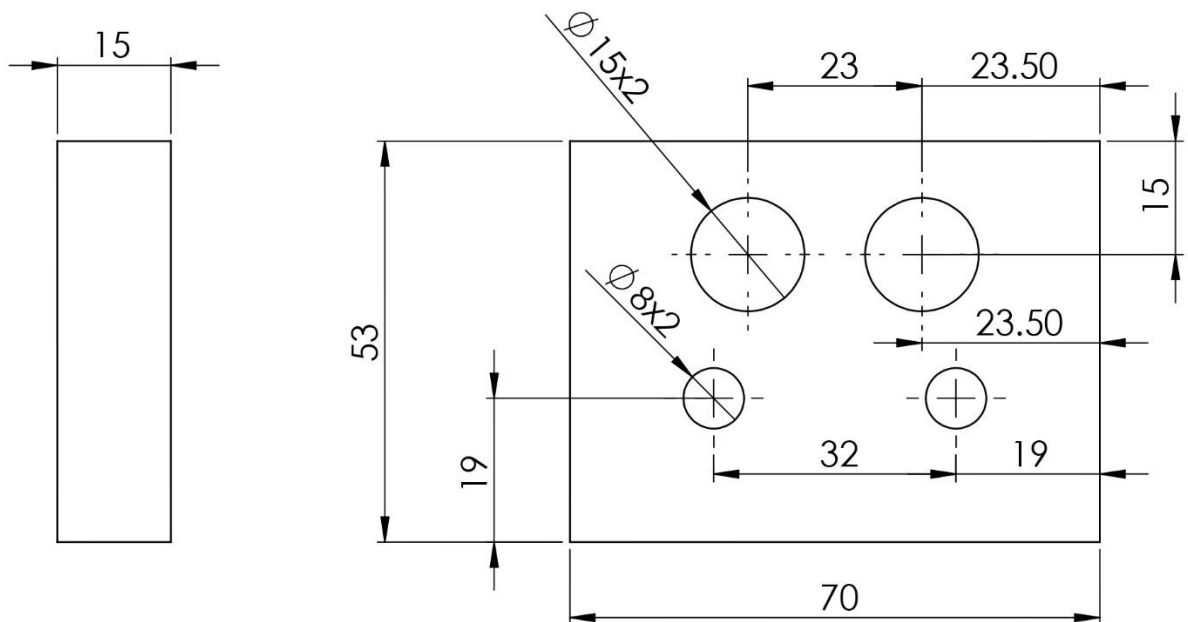
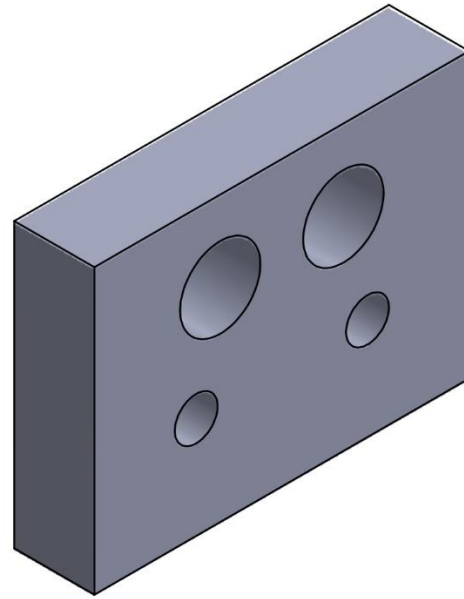
2	TUAS ENGKOL					MILD STEEL	LIHAT DETAIL	-	B2	PRODUKSI	
JML	NAMA BAGIAN					BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN	
>	0	6	30	120	400	1000	Pengerjaan Lanjut	NO. ORDER	 PROYEKSI Singgih B.P		
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
<h1>TUAS ENGKOL</h1>								SKALA 1:2	DIGAMBAR		
									DIPERIKSA		
									DISAHKAN		
POLITEKNIK NEGERI CILACAP								FORMAT A4	NO. GAMBAR No.08/TM		



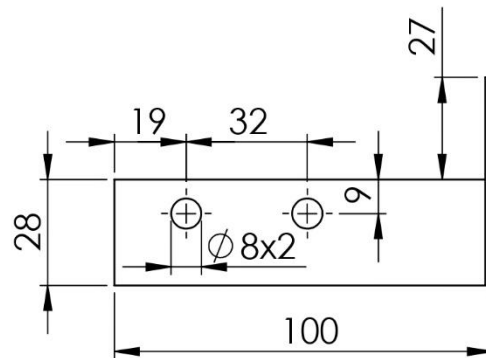
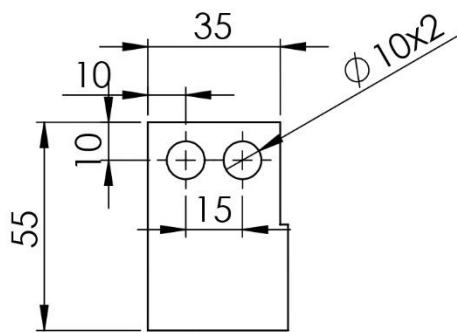
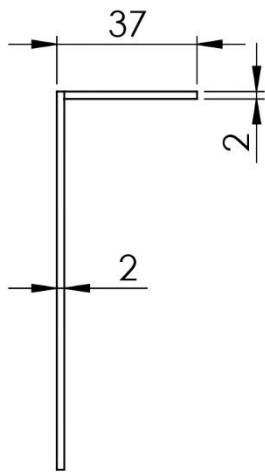
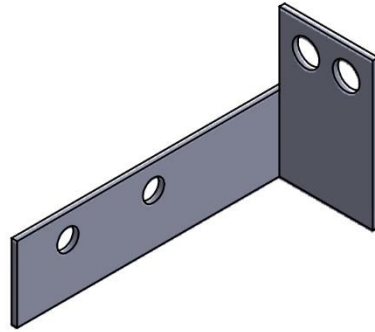
2	RODA GIGI	-	LIHAT DETAIL	-	B3	ORDER	
JML	NAMA BAGIAN	BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN	
>	0	6	30	120	400	1000	PROYEKSI 
<	6	30	120	400	1000	2000	
TOL	± 0.1	± 0.2	± 0.3	± 0.5	± 0.8	± 1.2	
<h1>RODA GIGI</h1>				SKALA 2:1	DIGAMBAR	Singgih B.P	
					DIPERIKSA		
					DISAHKAN		
 POLITEKNIK NEGERI CILACAP				FORMAT A4	NO. GAMBAR No.09/TM		



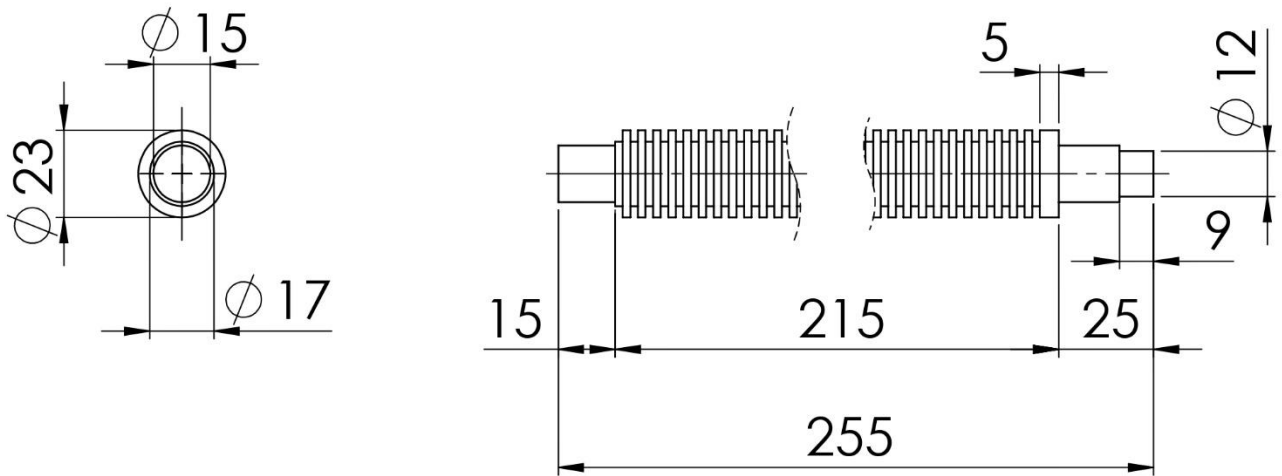
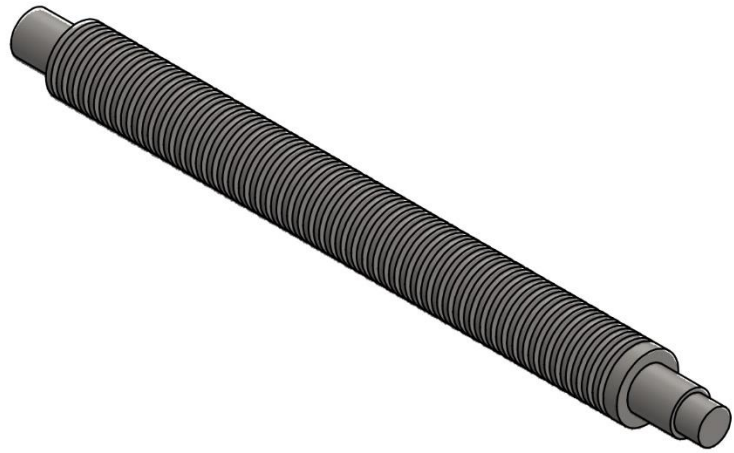
1	PLAT PENGHANTAM PISAU PEMOTONG	MILD STEEL	LIHAT DETAIL	-	B5	PRODUKSI					
JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	Pengerjaan Lanjut	NO. ORDER	 PROYEKSI		
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
<h2 style="text-align: center;">PLAT PENGHANTAM PISAU PEMOTONG</h2>								SKALA 1:5	DIGAMBAR		Singgih B.P
									DIPERIKSA		
									DISAHKAN		
POLITEKNIK NEGERI CILACAP								FORMAT A4	NO. GAMBAR No.10/TM		



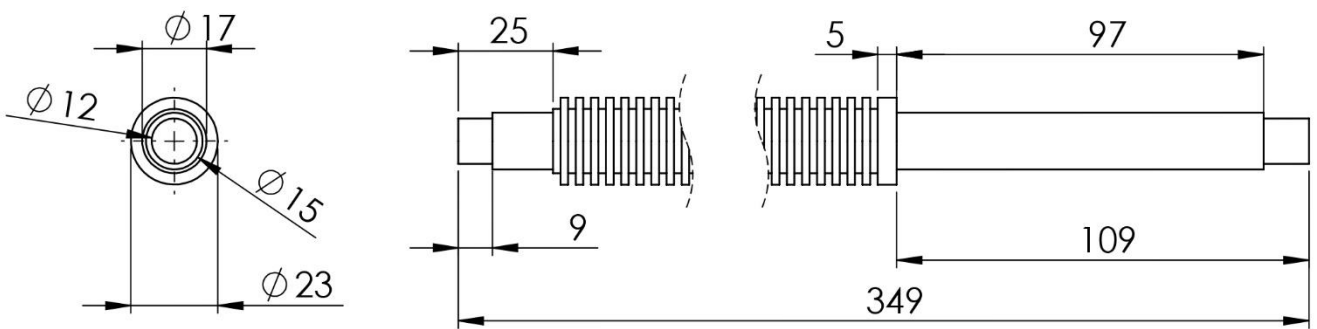
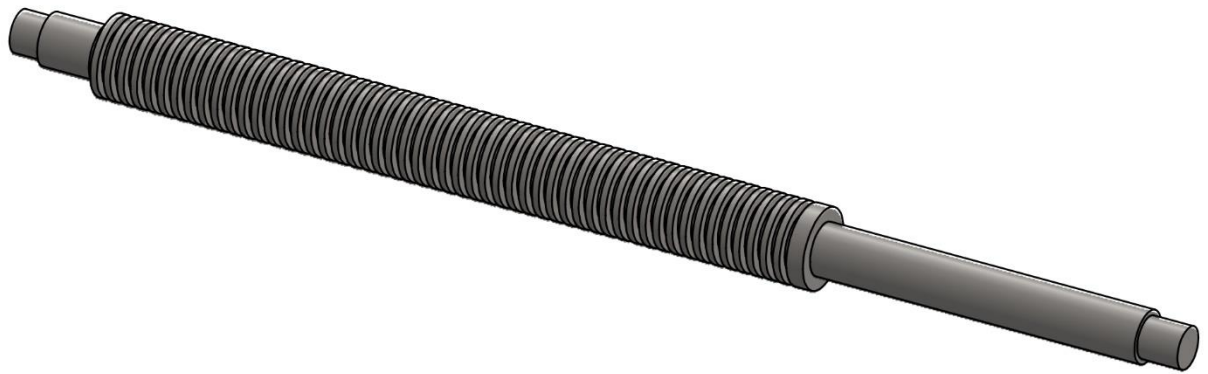
2	DUDUKAN POROS PEMOTONG						-	LIHAT DETAIL	-	B6	ORDER
JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	Pengerjaan Lanjut	NO. ORDER			
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
<h2>DUDUKAN POROS PEMOTONG</h2>									SKALA	DIGAMBAR	Singgih B.P
									1:1	DIPERIKSA	
										DISAHKAN	
POLITEKNIK NEGERI CILACAP									FORMAT	NO. GAMBAR	
									A4	No.11/TM	



2	PLAT DUDUKAN PEMOTONG					MILD STEEL	LIHAT DETAIL	-	B7	PRODUKSI
JML	NAMA BAGIAN					BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	Pengerjaan Lanjut	NO. ORDER		Singgih B.P
<	6	30	120	400	1000	2000				
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2				
PLAT DUDUKAN PEMOTONG								SKALA 1:2	DIGAMBAR	
									DIPERIKSA	
									DISAHKAN	
POLITEKNIK NEGERI CILACAP								FORMAT A4	NO. GAMBAR No.12/TM	



1	POROS PEMOTONG 1					SS	LIHAT DETAIL	-	B8	ORDER
JML	NAMA BAGIAN					BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	Pengerjaan Lanjut	NO. ORDER		
<	6	30	120	400	1000	2000				
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2				
<h1>POROS PEMOTONG 1</h1>								SKALA	DIGAMBAR	Singgih B.P
								1:2	DIPERIKSA	
									DISAHKAN	
POLITEKNIK NEGERI CILACAP								FORMAT	NO. GAMBAR	
								A4	No.13/TM	



1	POROS PEMOTONG 2						SS	LIHAT DETAIL	-	B9	ORDER
JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	Pengerjaan Lanjut	NO. ORDER	PROYEKSI		
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
<h1>POROS PEMPIH 2</h1>									SKALA	DIGAMBAR	Singgih B.P
									1:2	DIPERIKSA	
										DISAHKAN	
POLITEKNIK NEGERI CILACAP									FORMAT	NO. GAMBAR	
									A4	No.14/TM	