

# LAMPIRAN

## Lampiran 1 Konversi

1014

MACHINE DESIGN - An Integrated Approach

Table F-1 Selected Units Conversion Factors

Note That These Conversion Factors (and Others) are Built Into the TKSolver Files UNITMAST and STUDENT

Multiply this	by	this	to get	this	Multiply this	by	this	to get	this
<b>acceleration</b>					<b>mass moment of inertia</b>				
in/sec <sup>2</sup>	x	0.0254	=	m/sec <sup>2</sup>	lb-in-sec <sup>2</sup>	x	0.1138	=	N-m-sec <sup>2</sup>
ft/sec <sup>2</sup>	x	12	=	in/sec <sup>2</sup>	<b>moments and energy</b>				
<b>angles</b>					in-lb	x	0.1138	=	N-m
radian	x	57.2958	=	deg	ft-lb	x	12	=	in-lb
<b>area</b>					N-m	x	8.7873	=	in-lb
in <sup>2</sup>	x	645.16	=	mm <sup>2</sup>	N-m	x	0.7323	=	ft-lb
ft <sup>2</sup>	x	144	=	in <sup>2</sup>	<b>power</b>				
<b>area moment of inertia</b>					HP	x	550	=	ft-lb/sec
in <sup>4</sup>	x	416 231	=	mm <sup>4</sup>	HP	x	33 000	=	ft-lb/min
in <sup>4</sup>	x	4.162E-07	=	m <sup>4</sup>	HP	x	6 600	=	in-lb/sec
m <sup>4</sup>	x	1.0E+12	=	mm <sup>4</sup>	HP	x	745.7	=	watts
m <sup>4</sup>	x	1.0E+08	=	cm <sup>4</sup>	N-m/sec	x	8.7873	=	in-lb/sec
ft <sup>4</sup>	x	20 736	=	in <sup>4</sup>	<b>pressure and stress</b>				
<b>density</b>					psi	x	6 894.8	=	Pa
lb/in <sup>3</sup>	x	27.6805	=	g/cc	psi	x	6.895E-3	=	MPa
g/cc	x	0.001	=	g/mm <sup>3</sup>	psi	x	144	=	psf
lb/ft <sup>3</sup>	x	1 728	=	lb/in <sup>3</sup>	kpsi	x	1 000	=	psi
kg/m <sup>3</sup>	x	1.0E-06	=	g/mm <sup>3</sup>	N/m <sup>2</sup>	x	1	=	Pa
<b>force</b>					N/mm <sup>2</sup>	x	1	=	MPa
lb	x	4.448	=	N	<b>spring rate</b>				
N	x	1.0E+05	=	dyne	lb/in	x	175.126	=	N/m
ton (short)	x	2 000	=	lb	lb/ft	x	0.08333	=	lb/in
<b>length</b>					<b>stress intensity</b>				
in	x	25.4	=	mm	MPa-m <sup>0.5</sup>	x	0.909	=	ksi-in <sup>0.5</sup>
ft	x	12	=	in	<b>velocity</b>				
<b>mass</b>					in/sec	x	0.0254	=	m/sec
blob	x	386.4	=	lb	ft/sec	x	12	=	in/sec
slug	x	32.2	=	lb	rad/sec	x	9.5493	=	rpm
blob	x	12	=	slug	<b>volume</b>				
kg	x	2.205	=	lb	in <sup>3</sup>	x	16 387.2	=	mm <sup>3</sup>
kg	x	9.8083	=	N	ft <sup>3</sup>	x	1 728	=	in <sup>3</sup>
kg	x	1 000	=	g	cm <sup>3</sup>	x	0.061023	=	in <sup>3</sup>
					m <sup>3</sup>	x	1.0E+9	=	mm <sup>3</sup>

## Lampiran Tabel Panjang Sabuk

Tabel 5.3 (b) Panjang sabuk-V standar.

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

# Lampiran Diameter Poros

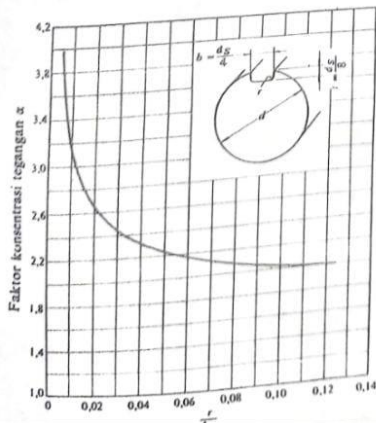
## 1.3 Poros Dengan Beban Puntir

Tabel 1.7 Diameter poros.

(Satuan mm)

4	10	*22,4	40	100	*224	400	
		24		(105)	240		
4,5	11	25	45	110	250	420	
	*11,2	28		*112	260		440
	12	30		120	300		450
5	*12,5	*31,5	50	125	*315	480	
		32		130	320		500
*5,6	14	35	55	140	340	530	
	(15)	*35,5		150	*355		560
6	16	38	60	160	380	600	
	(17)			170			
*6,3	18	19	63	180	190	630	
	19			200			
7	20	22	65	200	220		
				220			
*7,1			70				
				71			
8			75				
				80			
9			85				
				90			
			95				

- Keterangan:
1. Tanda \* menyatakan bahwa bilangan yang bersangkutan dipilih dari bilangan standar.
  2. Bilangan di dalam kurung hanya dipakai untuk bagian dimana akan dipasang bantalan gelinding.



Gbr. 1.1 Faktor konsentrasi tegangan  $\alpha$  untuk pembebanan puntir statis dari suatu poros bulat dengan alur pasak persegi yang diberi fillet.

## Lampiran Standar Baja

### 1.3 Poros Dengan Beban Puntir

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milihan dilakukan atas dasar standar-standar yang ada.

Nama-nama dan lambang-lambang dari bahan-bahan menurut standar beberapa negara serta persamaannya dengan JIS (standar Jepang) untuk poros diberikan dalam Tabel 1.5.

Tabel 1.5 Standar baja.

Nama	Standar Jepang (JIS)	Standar Amerika (AISI), Inggris (BS), dan Jerman (DIN)
Baja karbon konstruksi mesin	S25C S30C S35C S40C S45C S50C S55C	AISI 1025, BS060A25 AISI 1030, BS060A30 AISI 1035, BS060A35, DIN C35 AISI 1040, BS060A40 AISI 1045, BS060A45, DIN C45, CK45 AISI 1050, BS060A50, DIN St 50.11 AISI 1055, BS060A55
Baja tempa	SF 40,45 50,55	ASTM A105-73
Baja nikel khrom	SNC SNC22	BS 653M31 BS En36
Baja nikel khrom molibden	SNCM 1 SNCM 2 SNCM 7 SNCM 8 SNCM22 SNCM23 SNCM25	AISI 4337 BS830M31 AISI 8645, BS En100D AISI 4340, BS817M40, 816M40 AISI 4315 AISI 4320, BS En325 BS En39B
Baja khrom	SCr 3 SCr 4 SCr 5 SCr21 SCr22	AISI 5135, BS530A36 AISI 5140, BS530A40 AISI 5145 AISI 5115 AISI 5120
Baja khrom molibden	SCM2 SCM3 SCM4 SCM5	AISI 4130, DIN 34CrMo4 AISI 4135, BS708A37, DIN34CrMo4 AISI 4140, BS708M40, DIN42CrMo4 AISI 4145, DIN50CrMo4

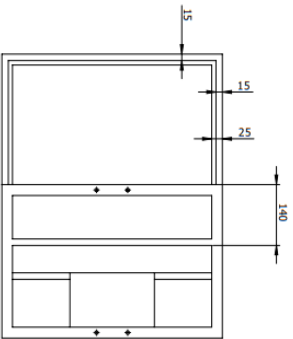
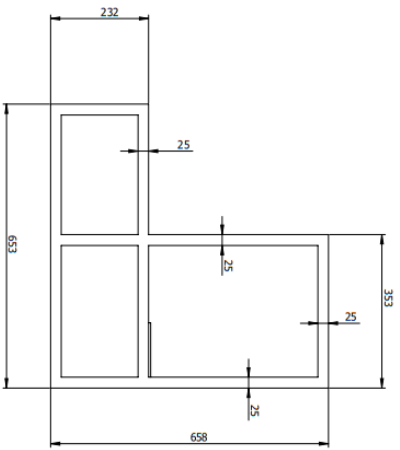
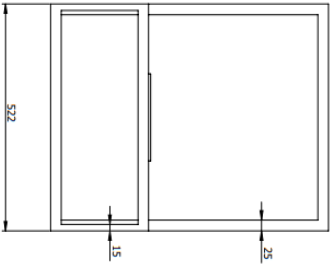
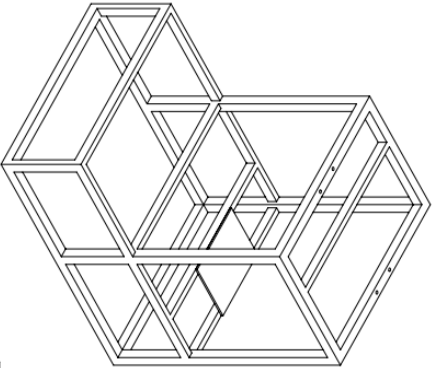
Poros Puntir

## Lampiran Proses Pembuatan Kerangka



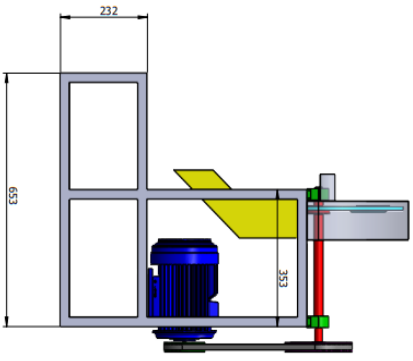
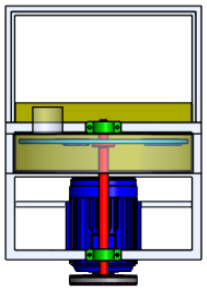
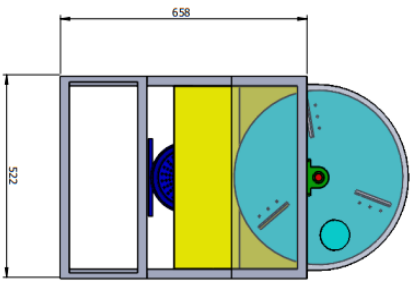
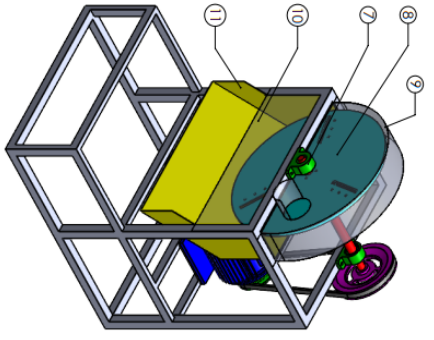




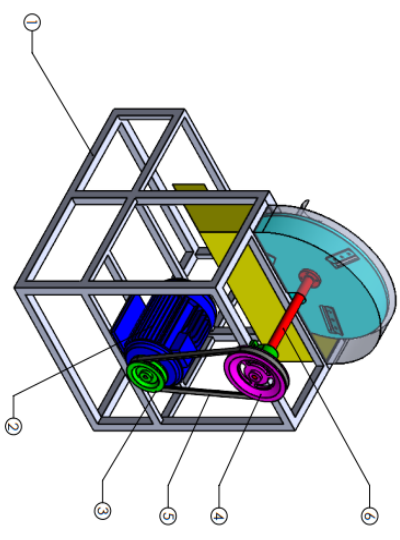


	Skala : 1 : 8	Digambar : Yokanes dan Arifudin	Keterangan :
	Solun : mm	NBI : 14216000 (60.04)	
	Tongkol : 9 - 12 - 22	Dilihat : k. Muli, Mufli, M.T	
FRAME			
No:	02		
	A3		

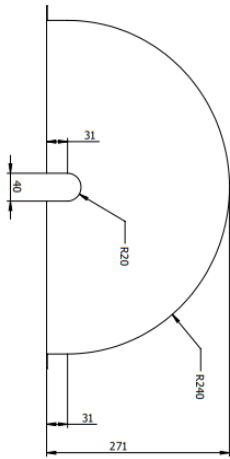
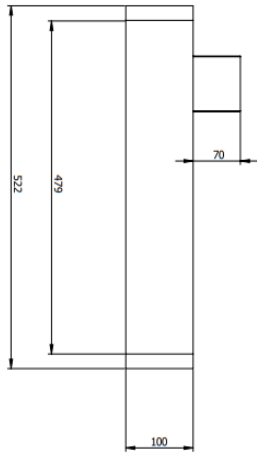
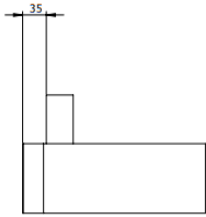
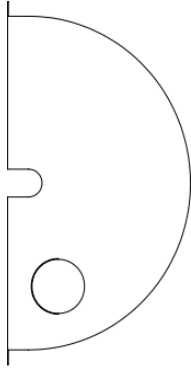
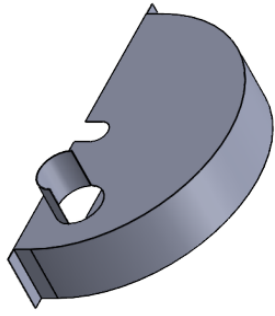




No	Nama komponen	Bahan	Jumlah	Keterangan
1	Frame		1	
2	Motor AC		1	
3	Pulley		1	
4	Pulley		1	
5	Belt		1	
6	Poros		1	
7	Pillow Block		2	
8	Cakram Pisau		1	
9	Cover atas		1	
10	Cover depan		1	
11	Troy		1	



	Skala : 1 : 9	Digambar : Yohanes dan Ariefudin	Keterangan :
	Satuan : mm	NBI : 14216000 (60.04)	
	Tanggal : 9 - 12 - 22	Dilatih : Ir. Muhi, Mufti, M.T	No: 01
ALAT PERALANG SINGKONG			A3



	Skala : 1 : 5	Digambar : Yohanes dan Artulian	Kelasangan :
	Selvaun : mm	NBI : 1421/6000 (6004)	
	Tanggal : 9 - 12 - 22	Dilatih : Ir. Muhi. Mufti, M.T	
COVER ATAS			
No:	03		A3

