

LAMPIRAN



KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
POLITEKNIK NEGERI SRIWIJAYA
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LEMBAR BIMBINGAN LAPORAN AKHIR

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Judul Laporan Akhir : Alat Perakit Joran Pancing

Pembimbing I : Ahmad Junaidi, S.T., M.T.
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No.	Tanggal	Uraian Bimbingan	Tanda Tangan Pembimbing	
			I	II
1.	12 Mei 2020	Bimbingan proposal LA Daring		
2.	20 Mei 2020	Revisi proposal Daring (referensi)		
3.	2 Juni 2020	bimbingan proposal LA dan design Alat.		
4.	8 Juni 2020	ACC proposal LA		
5.	15 Juni 2020	bimbingan Bab 1, II		
6.	24 Juni 2020	Revisi Bab 1, II pada rumusan masalah		
7.	2 Juli 2020	Revisi Bab 1, II		
8.	6 Juli 2020	ACC Bab 1, II		
9.	14 Juli 2020	Bimbingan Design Alat		

No.	Tanggal	Uraian Bimbingan	Tanda Tangan Pembimbing	
			I	II
10.	22 Juli 2020	Bimbingan Bab III		
11.	29 Juli 2020	Revisi Bab III		
12.	3 Agustus 2020	Revisi Bab III dan Design		
13.	4 Agustus 2020	Revisi design		
14.	11 Agustus 2020	Revisi bab III		
15.	12 Agustus 2020	Revisi bab III		
16.	13 Agustus 2020	Revisi bab III		
17.	14 Agustus 2020	Acc bab III, Revisi bab IV		
18.	17 Agustus 2020	Acc bab IV, V		
19.				
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24.				

Mengetahui,
Ketua Jurusan Teknik Mesin

A handwritten signature in blue ink, consisting of stylized, overlapping loops and lines.

Ir. Sairul Effendi, M.T.
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REKOMENDASI UJIAN LAPORAN AKHIR (LA)

Pembimbing Laporan Akhir memberikan rekomendasi kepada:

Nama : Intan Sari Wijaya

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Jurusan/Konsentrasi : D III Teknik Mesin / Perawatan dan Perbaikan

Judul Laporan Akhir : Rancang Bangun Alat Perakit Joran Pancing

Mahasiswa tersebut telah memenuhi persyaratan dan dapat mengikuti Ujian Laporan Akhir (LA) pada Tahun Akademik 2019 / 2020.

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PELAKSANAAN REVISI LAPORAN AKHIR

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Judul Laporan Akhir : Rancang Bangun Alat Perakit Joran Pancing

Telah melaksanakan revisi terhadap Laporan Akhir yang diujikan pada hari Rabu tanggal 19 bulan Agustus tahun 2020. Pelaksanaan revisi terhadap Laporan Akhir tersebut telah disetujui oleh Dosen Penguji yang memberikan revisi:

No.	Komentar	Nama Dosen Penguji	Tanggal	Tanda Tangan
1	Tdk ada revisi	Ahmad Junaidi, S.T., M.T.	9/2020	
2	Tdk ada Revisi	Drs. Soegeng Witjahjo, S.T., M.T.	2/9-20	
3	Tidak ada revisi	Ir. Romli, M.T.	7/9/2020	
4	Sudah direvisi Acc	Ella Sundari, S.T., M.T.	1/9 2020	
5	Tidak ada Revisi	Mulyadi S, S.T., M.T.	2/9 20	

Palembang, 9 September 2020

Ketua Penguji,

(Ahmad Junaidi, S.T., M.T.)

NIP. 196607111990031001

Catatan:

*) Dosen penguji yang memberikan revisi saat ujian laporan akhir.

**) Dosen penguji yang ditugaskan sebagai Ketua Penguji saat ujian LA.

Lembaran pelaksanaan revisi ini harus dilampirkan dalam Laporan Akhir.

Tabel A₁. Spesifikasi Motor

HP	Speed (RPM)	Volts	Frame	Weight (lbs.)	Model Number	FL Amps	Nominal FL EFF
0.5	1800	230/460	143T	60	B1/24FLF2AMH	1.5/0.75	82.5
0.5	1800	575	143T	60	B1/24FLF2OMH	0.60	82.5
0.5	1200	230/460	143T	60	B1/26FLF2AMH	1.8/0.9	77.0
0.5	1200	575	143T	60	B1/26FLF2OMH	0.8	78.5
0.75	1800	230/460	143T	60	B3/44FLF2AMH	2.2/1.1	85.5
0.75	1800	575	143T	60	B3/44FLF2OMH	0.85	85.5
0.75	1200	230/460	143T	60	B3/46FLF2AMH03	3/1.5	80.0
0.75	1200	575	143T	60	B3/46FLF2OMH03	1.2	80.0
0.75	900	230/460	145T	62	B3/48FLF2AMH	4.2/2.1	72.0
0.75	900	575	145T	62	B3/48FLF2OMH	1.5	74.0
1	1800	230/460	143T	60	B0014FLF2AMH03	2.8/1.4	85.5
1	1800	575	143T	60	B0014FLF2OMH03	1.1	85.5
1	1200	230/460	145T	62	B0016FLF2AMH03	3.6/1.8	82.5
1	1200	575	145T	62	B0016FLF2OMH03	1.4	82.5
1	900	230/460	182T	82	B0018FLF2AMH	4.4 / 2.2	82.5
1	900	575	182T	82	B0018FLF2OMH	1.7	82.5

HP	Speed (RPM)	Volts	Frame	Weight (lbs.)	Model Number	FL Amps	Nominal FL EFF	Notes
1	1800	230/460	143TC	49	0014FTSA24A-B	2.9/1.45	82.5	1
1	1800	575	143TC	49	0014FTSC24A-B	1.15	82.5	1
1	1200	230/460	145TC	53	0016FTSA24A-B	3.4/1.7	80.0	1
1	1200	575	145TC	53	0016FTSC24A-B	1.4	80.0	1
1.5	3600	230/460	143TC	53	V152FTSA24A-B	4.4/2.2	82.5	1
1.5	3600	575	143TC	53	V152FTSC24A-B	1.8	82.5	1
1.5	1800	230/460	145TC	62	V154FTSA24A-B	4.2/2.1	84.0	1
1.5	1800	575	145TC	62	V154FTSC24A-B	1.7	84.0	1
1.5	1200	230/460	182TC	99	V156FTSA24A-B	4.6/2.3	85.5	1
1.5	1200	575	182TC	99	V156FTSC24A-B	1.84	85.5	1
2	3600	230/460	145TC	61	0022FTSA24A-B	5.2/2.6	84.0	1
2	3600	575	145TC	61	0022FTSC24A-B	2.1	84.0	1
2	1800	230/460	145TC	62	0024FTSA24A-B	5.6/2.8	84.0	1
2	1800	575	145TC	62	0024FTSC24A-B	2.2	84.0	1
2	1200	230/460	184TC	91	0026FTSA24A-B	6.2/3.1	86.5	1

Tabel A₂. Spesifikasi Motor



Tabel B₁. Konversi Satuan

TABLE. 1. Conversion Factors		
Area		
1 mm ² = 1.0 × 10 ⁻⁶ m ²	1 ft ² = 144 in. ²	
1 cm ² = 1.0 × 10 ⁻⁴ m ² = 0.1550 in. ²	1 in. ² = 6.4516 cm ² = 6.4516 × 10 ⁻⁴ m ²	
1 m ² = 10.7639 ft ²	1 ft ² = 0.092 903 m ²	
Conductivity		
1 W/m-K = 1 J/s-m-K		
= 0.577 789 Btu/h-ft-R	1 Btu/h-ft-R = 1.730 735 W/m-K	
Density		
1 kg/m ³ = 0.06242797 lbm/ft ³	1 lbm/ft ³ = 16.018 46 kg/m ³	
1 g/cm ³ = 1000 kg/m ³		
1 g/cm ³ = 1 kg/L		
Energy		
1 J = 1 N-m = 1 kg-m ² /s ²		
1 J = 0.737 562 lbf-ft	1 lbf-ft = 1.355 818 J	
1 cal (Int.) = 4.1868 J	= 1.28507 × 10 ⁻³ Btu	
	1 Btu (Int.) = 1.055 056 kJ	
1 erg = 1.0 × 10 ⁻⁷ J	= 778.1693 lbf-ft	
1 eV = 1.602 177 33 × 10 ⁻¹⁹ J		
Force		
1 N = 0.224809 lbf	1 lbf = 4.448 222 N	
1 kp = 9.80665 N (1 kgf)		
Gravitation		
g = 9.80665 m/s ²	g = 32.17405 ft/s ²	
Heat capacity, specific entropy		
1 kJ/kg-K = 0.238 846 Btu/lbm-R	1 Btu/lbm-R = 4.1868 kJ/kg-K	
Heat flux (per unit area)		
1 W/m ² = 0.316 998 Btu/h-ft ²	1 Btu/h-ft ² = 3.15459 W/m ²	
Heat transfer coefficient		
1 W/m ² -K = 0.176 11 Btu/h-ft ² -R	1 Btu/h-ft ² -R = 5.67826 W/m ² -K	
Length		
1 mm = 0.001 m = 0.1 cm	1 ft = 12 in.	
1 cm = 0.01 m = 10 mm = 0.3970 in.	1 in. = 2.54 cm = 0.0254 m	
1 m = 3.28084 ft = 39.370 in.	1 ft = 0.3048 m	
1 km = 0.621 371 mi	1 mi = 1.609344 km	
1 mi = 1609.3 m (US statute)	1 yd = 0.9144 m	

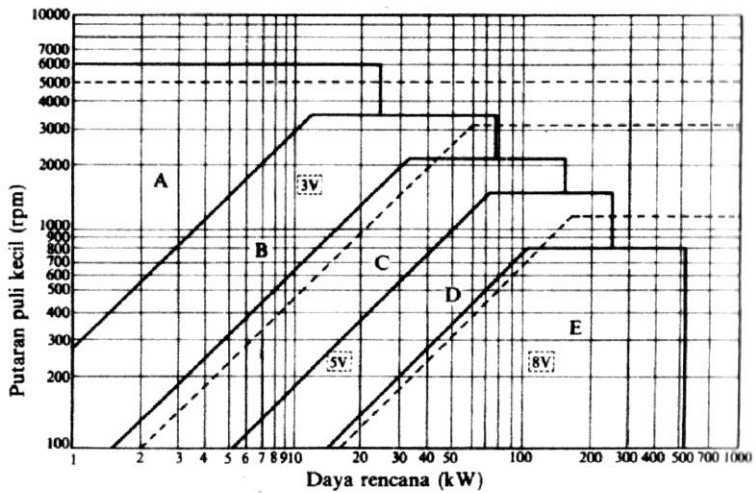
Tabel B2. Konversi Satuan

TABLE (Continued) <i>Conversion Factors</i>	
Specific kinetic energy (V^2)	
$1 \text{ m}^2/\text{s}^2 = 0.001 \text{ kJ/kg}$	$1 \text{ ft}^2/\text{s}^2 = 3.9941 \times 10^{-5} \text{ Btu/lbm}$
$1 \text{ kJ/kg} = 1000 \text{ m}^2/\text{s}^2$	$1 \text{ Btu/lbm} = 25037 \text{ ft}^2/\text{s}^2$
Specific potential energy (Zg)	
$1 \text{ m-g}_{\text{std}} = 9.80665 \times 10^{-3} \text{ kJ/kg}$	$1 \text{ ft-g}_{\text{std}} = 1.0 \text{ lbf-ft/lbm}$
$= 4.21607 \times 10^{-3} \text{ Btu/lbm}$	$= 0.001285 \text{ Btu/lbm}$
	$= 0.002989 \text{ kJ/kg}$
Specific volume	
$1 \text{ cm}^3/\text{g} = 0.001 \text{ m}^3/\text{kg}$	
$1 \text{ cm}^3/\text{g} = 1 \text{ L/kg}$	
$1 \text{ m}^3/\text{kg} = 16.01846 \text{ ft}^3/\text{lbm}$	$1 \text{ ft}^3/\text{lbm} = 0.062428 \text{ m}^3/\text{kg}$
Temperature	
$1 \text{ K} = 1^\circ\text{C} = 1.8 \text{ R} = 1.8 \text{ F}$	$1 \text{ R} = (5/9) \text{ K}$
$\text{TC} = \text{TK} - 273.15$	$\text{TF} = \text{TR} - 459.67$
$= (\text{TF} - 32)/1.8$	$= 1.8 \text{ TC} + 32$
$\text{TK} = \text{TR}/1.8$	$\text{TR} = 1.8 \text{ TK}$
Universal Gas Constant	
$R = N_A k = 8.31451 \text{ kJ/kmol-K}$	$R = 1.98589 \text{ Btu/lbmol-R}$
$= 1.98589 \text{ kcal/kmol-K}$	$= 1545.36 \text{ lbf-ft/lbmol-R}$
$= 82.0578 \text{ atm-L/kmol-K}$	$= 0.73024 \text{ atm-ft}^3/\text{lbmol-R}$
	$= 10.7317 (\text{lbf/in.}^2)\text{-ft}^3/\text{lbmol-R}$
Velocity	
$1 \text{ m/s} = 3.6 \text{ km/h}$	$1 \text{ ft/s} = 0.681818 \text{ mi/h}$
$= 3.28084 \text{ ft/s}$	$= 0.3048 \text{ m/s}$
$= 2.23694 \text{ mi/h}$	$= 1.09728 \text{ km/h}$
$1 \text{ km/h} = 0.27778 \text{ m/s}$	$1 \text{ mi/h} = 1.46667 \text{ ft/s}$
$= 0.91134 \text{ ft/s}$	$= 0.44704 \text{ m/s}$
$= 0.62137 \text{ mi/h}$	$= 1.609344 \text{ km/h}$
Volume	
$1 \text{ m}^3 = 35.3147 \text{ ft}^3$	$1 \text{ ft}^3 = 2.831685 \times 10^{-2} \text{ m}^3$
$1 \text{ L} = 1 \text{ dm}^3 = 0.001 \text{ m}^3$	$1 \text{ in.}^3 = 1.6387 \times 10^{-5} \text{ m}^3$
$1 \text{ Gal (US)} = 3.785412 \text{ L}$	$1 \text{ Gal (UK)} = 4.546090 \text{ L}$
$= 3.785412 \times 10^{-3} \text{ m}^3$	$1 \text{ Gal (US)} = 231.00 \text{ in.}^3$

Tabel B₃. Konversi Satuan

TABLE (Continued) Conversion Factors			
Mass			
1 kg	= 2.204 623 lbm	1 lbm	= 0.453 592 kg
1 tonne	= 1000 kg	1 slug	= 14.5939 kg
1 grain	= 6.47989×10^{-5} kg	1 ton	= 2000 lbm
Moment (torque)			
1 N-m	= 0.737 562 lbf-ft	1 lbf-ft	= 1.355 818 N-m
Momentum (mV)			
1 kg-m/s	= 7.232 94 lbm-ft/s	1 lbm-ft/s	= 0.138 256 kg-m/s
	= 0.224809 lbf-s		
Power			
1 W	= 1 J/s = 1 N-m/s	1 lbf-ft/s	= 1.355 818 W
	= 0.737 562 lbf-ft/s		= 4.626 24 Btu/h
1 kW	= 3412.14 Btu/h	1 Btu/s	= 1.055 056 kW
1 hp (metric)	= 0.735 499 kW	1 hp (UK)	= 0.7457 kW
			= 550 lbf-ft/s
			= 2544.43 Btu/h
1 ton of refrigeration	= 3.516 85 kW	1 ton of refrigeration	= 12 000 Btu/h
Pressure			
1 Pa	= 1 N/m ² = 1 kg/m-s ²	1 lbf/in. ²	= 6.894 757 kPa
1 bar	= 1.0×10^5 Pa = 100 kPa		
1 atm	= 101.325 kPa	1 atm	= 14.695 94 lbf/in. ²
	= 1.01325 bar		= 29.921 in. Hg [32 F]
	= 760 mm Hg [0°C]		= 33.899 5 ft H ₂ O [4°C]
	= 10.332 56 m H ₂ O [4°C]	1 bar	= 0.986 923 bar
1 torr	= 1 mm Hg [0°C]	1 in. Hg [0°C]	= 0.49115 lbf/in. ²
1 mm Hg [0°C]	= 0.133 322 kPa	1 in. H ₂ O [4°C]	= 0.036126 lbf/in. ²
1 m H ₂ O [4°C]	= 9.806 38 kPa		
Specific energy			
1 kJ/kg	= 0.42992 Btu/lbm	1 Btu/lbm	= 2.326 kJ/kg
	= 334.55 lbf-ft/lbm	1 lbf-ft/lbm	= 2.98907×10^{-3} kJ/kg
			= 1.28507×10^{-3} Btu/lbm

Tabel D₁. Pemilihan Belt



Tabel D₂. Ukuran Belt

Penampang sabuk-V	Diameter nominal (diameter lingkaran jarak bagi d_p)	$\alpha(^{\circ})$	W^*	L_o	K	K_o	e	f
A	71 – 100	34	11,95	9,2	4,5	8,0	15,0	10,0
	101 – 125	36	12,12					
	126 atau lebih	38	12,30					
B	125 – 160	34	15,86	12,5	5,5	9,5	19,0	12,5
	161 – 200	36	16,07					
	201 atau lebih	38	16,29					
C	200 – 250	34	21,18	16,9	7,0	12,0	25,5	17,0
	251 – 315	36	21,45					
	316 atau lebih	38	21,72					
D	355 – 450	36	30,77	24,6	9,5	15,5	37,0	24,0
	451 atau lebih	38	31,14					
E	500 – 630	36	36,95	28,7	12,7	19,3	44,5	29,0
	631 atau lebih	38	37,45					

* Harga-barga dalam kolom W menyatakan ukuran standar.

Tabel D₃. Dimensi V-Belt

Type of belt	Cross-sectional			Design length of belt, L mm
	b mm	h mm	A mm ²	
O	10	6	0,47	400; 450; 560; 630; 710; 800; 900 1000; 1120; 1250; 1400; 1600 1800; 2000; 2240; 2500
A	13	8	0,81	560; 630; 710; 800; 900; 1000; 1120 1250; 1400; 1600; 1800; 2000 2240; 2500; 2800; 3150; 3550; 4000
B	17	10,5	1,38	800; 900; 1000; 1120; 1250; 1400 1600; 1800; 2000; 2240; 2500 2800; 3150; 3550; 4000; 4500 5000; 5600; 6300
C	22	13,5	2,3	1800; 2000; 2240; 2500; 2800 3150; 3550; 4000; 4500; 5000 5600; 6300; 7100; 8000; 9000; 10.000
D	32	19	4,75	3150; 3550; 4000; 4500; 5000 5600; 6300; 7100; 8000; 9000 10.000; 11.000; 12.500; 14.000
E	38	23,5	6,95	4500; 5000; 5600; 7100 8000; 9000; 10.000; 11.200; 12.500 14.000; 16.000; 18.000
F	50	30	11,7	6300; 7100; 8000; 9000; 10.000 11.200; 12.500; 14.000; 16.000; 18.000

Tabel D4. V-Belt Standar (bertanda *)

Penampang A			Penampang B		
13	* 65	117	16	* 68	*120
14	* 66	*118	17	* 69	121
15	* 67	119	18	* 70	*122
16	* 68	*120	19	* 71	123
*17	* 69	121	20	* 72	124
*18	* 70	*122	21	* 73	*125
*19	* 71	123	22	* 74	126
*20	* 72	124	23	* 75	127
*21	* 73	*125	24	* 76	*128
*22	* 74	126	*25	* 77	129
*23	* 75	127	*26	* 78	*130
*24	* 76	*128	*27	* 79	131
*25	* 77	129	*28	* 80	*132
*26	* 78	*130	*29	* 81	133
*27	* 79	131	*30	* 82	134
*28	* 80	132	*31	* 83	*135
*29	* 81	133	*32	* 84	136
*30	* 82	134	*33	* 85	137
*31	* 83	*135	*34	* 86	*138
*32	* 84	136	*35	* 87	139
*33	* 85	137	*36	* 88	*140
*34	* 86	138	*37	* 89	141
*35	* 87	139	*38	* 90	*142
*36	* 88	*140	*39	* 91	143
*37	* 89	141	*40	* 92	144
*38	* 90	142	*41	* 93	*145
*39	* 91	143	*42	* 94	146
*40	* 92	144	*43	* 95	147
*41	* 93	*145	*44	* 96	*148
*42	* 94	146	*45	* 97	149
*43	* 95	147	*46	* 98	*150
*44	* 96	148	*47	* 99	151
*45	* 97	149	*48	*100	152
*46	* 98	*150	*49	101	153
*47	* 99	151	*50	*102	154
*48	*100	152	*51	103	*155
*49	101	153	*52	104	156
*50	*102	154	*53	*105	157
*51	103	*155	*54	106	158
*52	104	156	*55	107	159
*53	*105	157	*56	*108	*160
*54	106	158	*57	109	161
*55	107	159	*58	*110	162
*56	*108	*160	*59	111	163
*57	109	161	*60	*112	164
*58	*110	162	*61	113	*165
*59	111	163	*63	114	166
*60	*112	164	*63	*115	167
*61	113	*165	*64	116	168
*62	114	166	*65	117	169
*63	*115	167	*66	*118	*170
*64	116	168	*67	119	171

Tabel D5. Panjang V-Belt 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

Tabel D₆. Panjang V-Belt Sempit

3 V			5 V		
Nomor nominal sabuk	Panjang keliling (mm)	Panjang keliling pada jarak bagi sabuk (mm)	Nomor nominal sabuk	Panjang keliling (mm)	Panjang keliling pada jarak bagi sabuk (mm)
3V 250	635	631	5V 500	1270	1262
3V 265	673	669	5V 530	1346	1338
3V 280	711	707	5V 560	1422	1414
3V 300	762	758	5V 600	1542	1516
3V 315	800	796	5V 630	1600	1592
3V 355	851	847	5V 670	1702	1694
3V 355	902	898	5V 710	1803	1795
3V 375	953	949	5V 750	1905	1897
3V 400	1016	1012	5V 800	2032	2024
3V 425	1080	1076	5V 850	2159	2151
3V 450	1143	1139	5V 900	2286	2278
3V 475	1207	1203	5V 950	2413	2405
3V 500	1270	1266	5V 1000	2540	2532
3V 530	1346	1342	5V 1060	2692	2684
3V 560	1422	1418	5V 1120	2845	2837

Tabel D₇. Overload Factors

Overload factor, K_o (for speed increasing and decreasing drives)

Power Source	Load on Driven Machine		
	Uniform	Moderate shock	Heavy shock
Uniform	1.00	1.25	1.75 or higher
Light shock	1.25	1.50	2.00 or higher
Medium shock	1.50	1.75	2.25 or higher

Tabel D₈. Diameter Minimum Pulley yang Diizinkan

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 D₉. Faktor Koreksi

Mesin yang digerakkan		Penggerak					
		Momen puntir puncak $\leq 200\%$			Momen puntir puncak $> 200\%$		
		Motor arus bolak-balik (momen normal, sangkar bajing, sinkron), motor arus searah (lilitan shunt)			Motor arus bolak-balik (momen tinggi, fasa tunggal, lilitan seri), motor arus 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
Variasi beban sangat kecil	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
Variasi beban kecil	Konveyor sabuk (pasir, batu bara), pengaduk, kipas angin (lebih dari 7,5 kW), mesin torak, peluncur, mesin perkakas, mesin percetakan	1,2	1,3	1,4	1,4	1,5	1,6
Variasi beban sedang	Konveyor (ember, sekrup), pompa torak, kompresor, gilingan palu, pengocok, roots-blower, mesin tekstil, mesin kayu	1,3	1,4	1,5	1,6	1,7	1,8
Variasi beban besar	Penghancur, gilingan bola atau batang, pengangkat, mesin pabrik karet (rol, kalender)	1,5	1,6	1,7	1,8	1,9	2,0

Tabel D₁₀. Dimensi dan Bahan untuk Belt

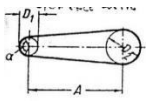
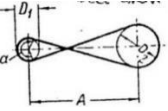
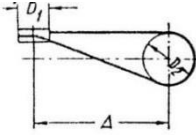
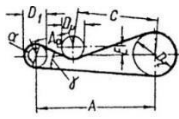
	Leather	Rubber canvas	Solid-woven cotton	Woven woolen	Interstitched rubber	Woven semi-linen
Width b in mm	20-300	20-500	30-250	50-300	20-137	15-53
Thickness h in mm	Single 3-5.5 Double 7.5-10	2.5-13.5	4.5-6.5-8.5	6-9-11	1.75-2.5-3.3	1.75
UTS in kg/cm ²	200	4-10 (without layers), 370 (with layers)	350-405	300	300	500
Max elongation	10% at 100kg/cm ³	18% at rupture	20-25% at rupture	60% at rupture	16% at rupture	10% at rupture
Ratio D_{min}/h recommended	35	40	30-40	30	40	30
Allowable	25	30	25-35	25	30	25
Recommended max velocity max in m/sec	40	20-30	25	30	50	50
Specific weight in kg/dm ³	0.98	1.25-1.50	0.75-1.05	0.90-1.24	≈1.2	≈1.0
Constant a	29	25	21	18	23	21
w (formula 3-25)	300	100	150	150	200	150
Modulus of Elastisitas, E_b in kg/cm ²	1.000-1.500	800-1.200	225-600	—	1.000-1.200	—

Tabel D₁₁. Dimensi Pulley

Cross-sections of V-belts	(sizes in Fig. 121)							(sizes in Fig. 122)				
	O	A	B	C	D	E	P	1	2	3	4	5
Cross-section area F in cm ²	0.5	0.8	1.4	2.3	4.8	7.0	11.7	1.1	1.2	1.6	2.2	2.7
conformity with the standard, design or inner * length of belt in mm	min	500*	500*	630*	1,800	3,150	4,500	6,300	560*	560*	900*	950*
	max	2,500	4,000	6,300	9,000	11,000	14,000	14,000	1,120*	1,400*	1,400*	1,400*
Difference between design and inner length of belt in mm	25	33	40	55	76	95	120	38	42	46	52	59
Minimum allowable design diameters of pulleys in mm	63	90	125	200	315	500	800	80	90	105	125	140
Constants in formula (51)	a	23	25	28	30	32	32					
	w	100	120	180	215	280	350	440				
Minimum recommended velocity v_{max} in m/sec	25	25	25	25	30	30	30	30	30	30	30	30
Design width of belt a_d in mm	8.5	11	14	19	27	32	42					
and sizes of pulley grooves (Fig. 125) *	e	10	12.5	16	21	28.5	34	43				
	c	2.5	3.5	5	6	8.5	10	12.5				
	t	12	16	20	26	37.5	44.5	58				
	s	8	10	12.5	17	24	29	38				
	ϕ^b	34-40			36-40			38-40				

Note. The angle of groove (ϕ) is selected depending on the pulley diameter; a lesser angle corresponds to a lesser diameters.

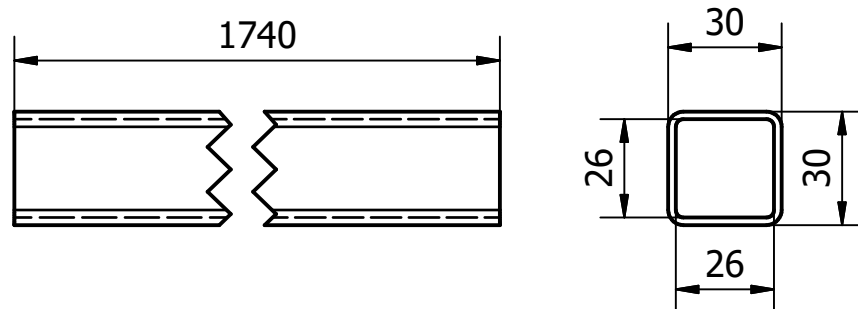
Tabel D₁₂. Sudut Kontak dan Panjang Belt

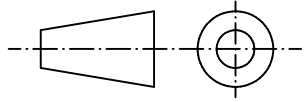
Sketch				
Arc of contact between the belt and the smaller pule	$\alpha \approx 180^\circ - \frac{D_2 - D_1}{A}$	$\alpha \approx 180^\circ - \frac{D_2 + D_1}{A}$	$\alpha \approx 180^\circ + \frac{D_1}{A}$	$\alpha \approx 180^\circ - \frac{D_2 - D_1}{A} + \frac{(D_1 + D_p - 2E)}{2A_p}$
Geometrical length of belt (disregarding tension and sag)	$L = 2A + \frac{\pi}{2}(D_2 + D_1) + \frac{(D_2 - D_1)^2}{4A}$	$L = 2A + \frac{\pi}{2}(D_2 + D_1) + \frac{(D_2 + D_1)^2}{4A}$	$L = 2A + \frac{\pi}{2}(D_2 + D_1) + \frac{D_2^2 + D_1^2}{4A}$	$L = (A + Ap + C) + \frac{\pi}{2}(D_2 + D_1) + \frac{(D_2 - D_1)^2}{8A} + \frac{(D_2 + D_p)^2}{8A} + \frac{(D_1 + D_p)^2}{8C} - \frac{E}{Ap} \frac{(D_1 + D_p)}{2} - \frac{E}{C} \frac{(D_2 + D_p)}{2}$

(Sumber : Dobrovolsky, 1985: 232-233)

No. 9a

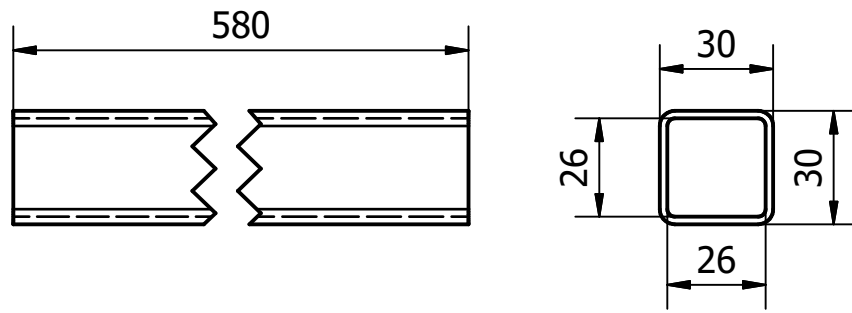
Gerinda potong
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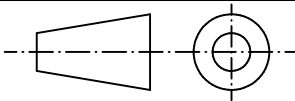


		1	Besi Hollow	9a	Carbon Steel	2000 X 30 X 30	Dibuat		
JUMLAH			NAMA BAGIAN	No. BAG	MATERIAL	UKURAN	KETERANGAN		
III	II	I	Perubahan :						
			Besi Hollow			Skala : 1 : 2	Dibuat	Team	
							Diperiksa	Junaidi Fatahul	
			TEKNIK MESIN POLITEKNIK NEGERI SRIWIJAYA			DRAME : TA / 6 MB / 2020			

No. 9b

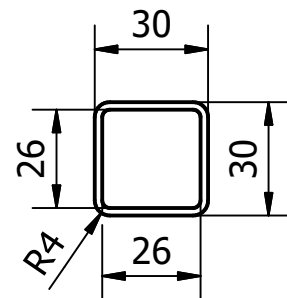
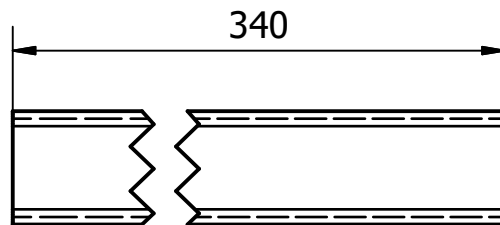
Gerinda potong
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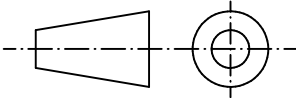


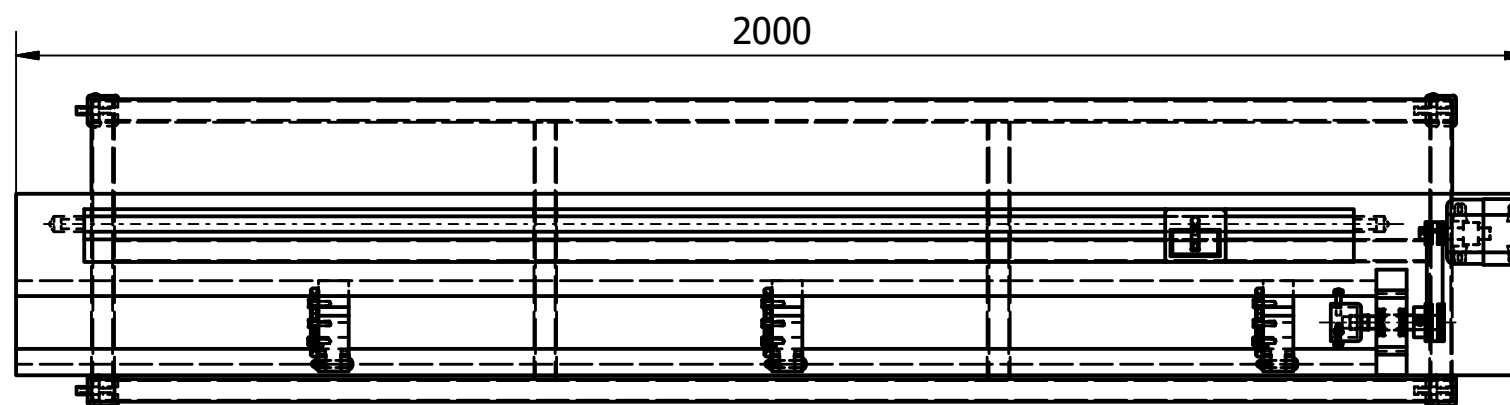
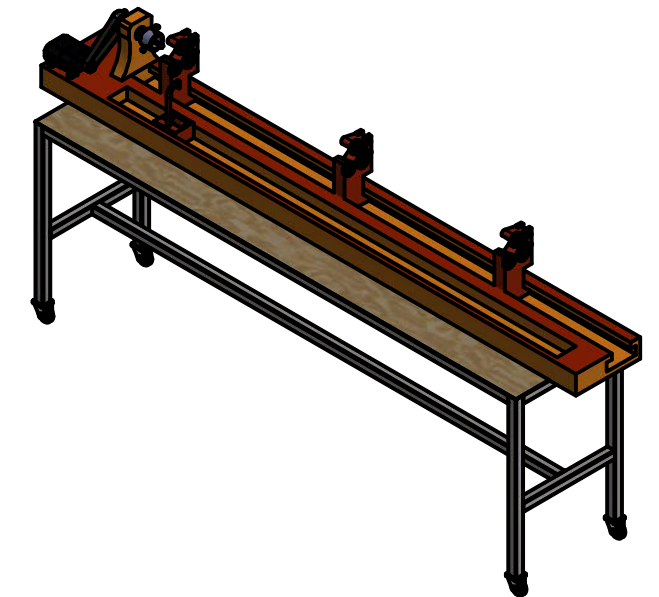
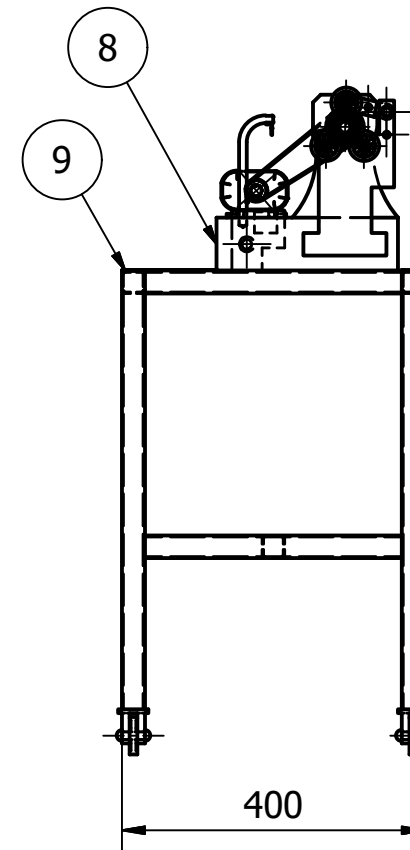
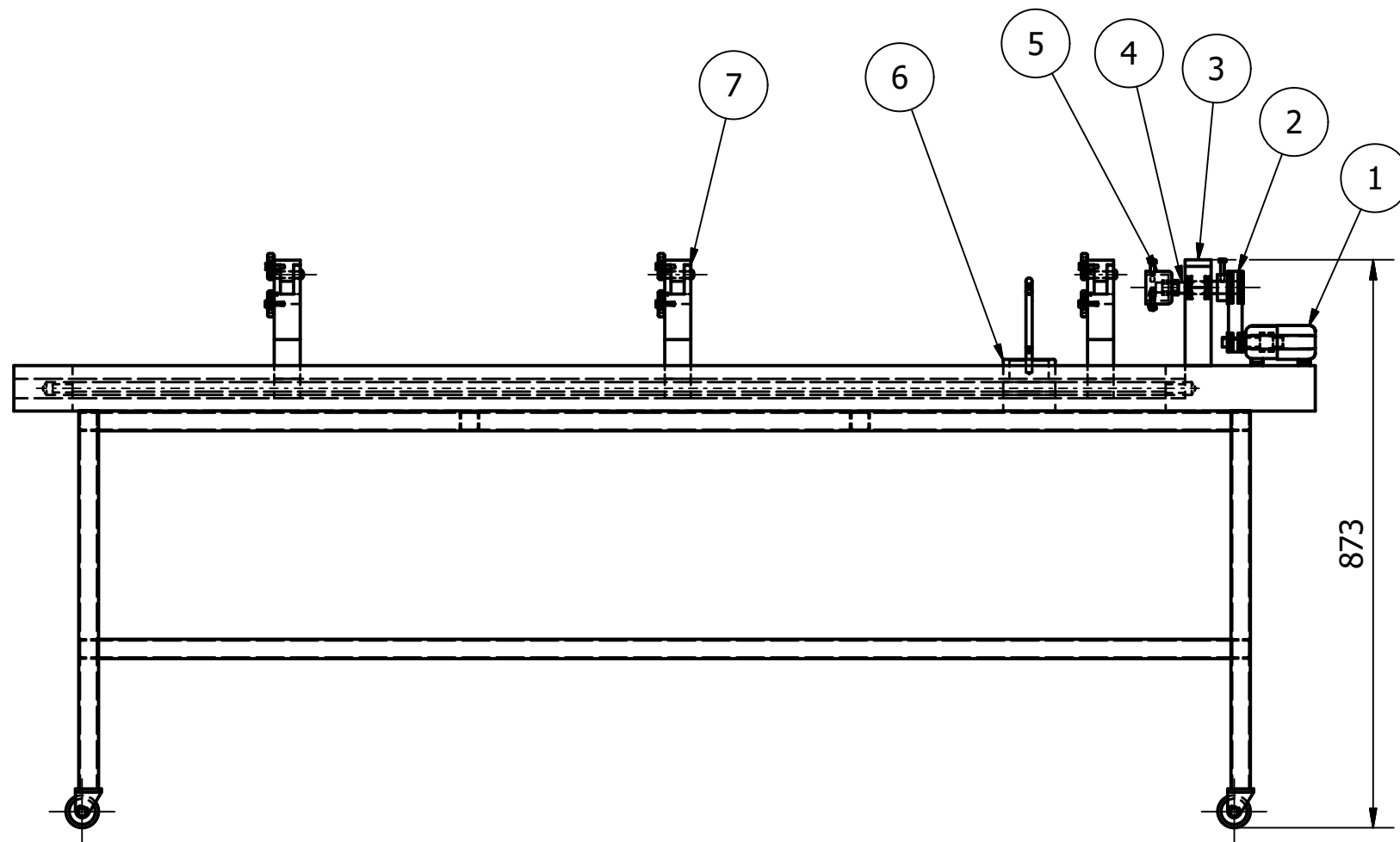
		1	Besi Hollow	9b	Carbon Steel	600 X 30 X 30	Dibuat		
JUMLAH			NAMA BAGIAN	No. BAG	MATERIAL	UKURAN	KETERANGAN		
III	II	I	Perubahan :						
			Besi Hollow			Skala : 1 : 2	Dibuat	Team	
							Diperiksa	Junaidi Fatahul	
			TEKNIK MESIN POLITEKNIK NEGERI SRIWIJAYA				DRAME : TA / 6 MB / 2020		

No. 9c

Gerinda potong
Tol $\pm 0,01$



		1	Besi Hollow	9c	Carbon Steel	350 X 30 X 30	Dibuat		
JUMLAH			NAMA BAGIAN	No. BAG	MATERIAL	UKURAN	KETERANGAN		
III	II	I	Perubahan :						
			Besi Hollow			Skala : 1 : 2	Dibuat	Team	
							Diperiksa	Junaidi Fatahul	
			TEKNIK MESIN POLITEKNIK NEGERI SRIWIJAYA			DRAME : TA / 6 MB / 2020			

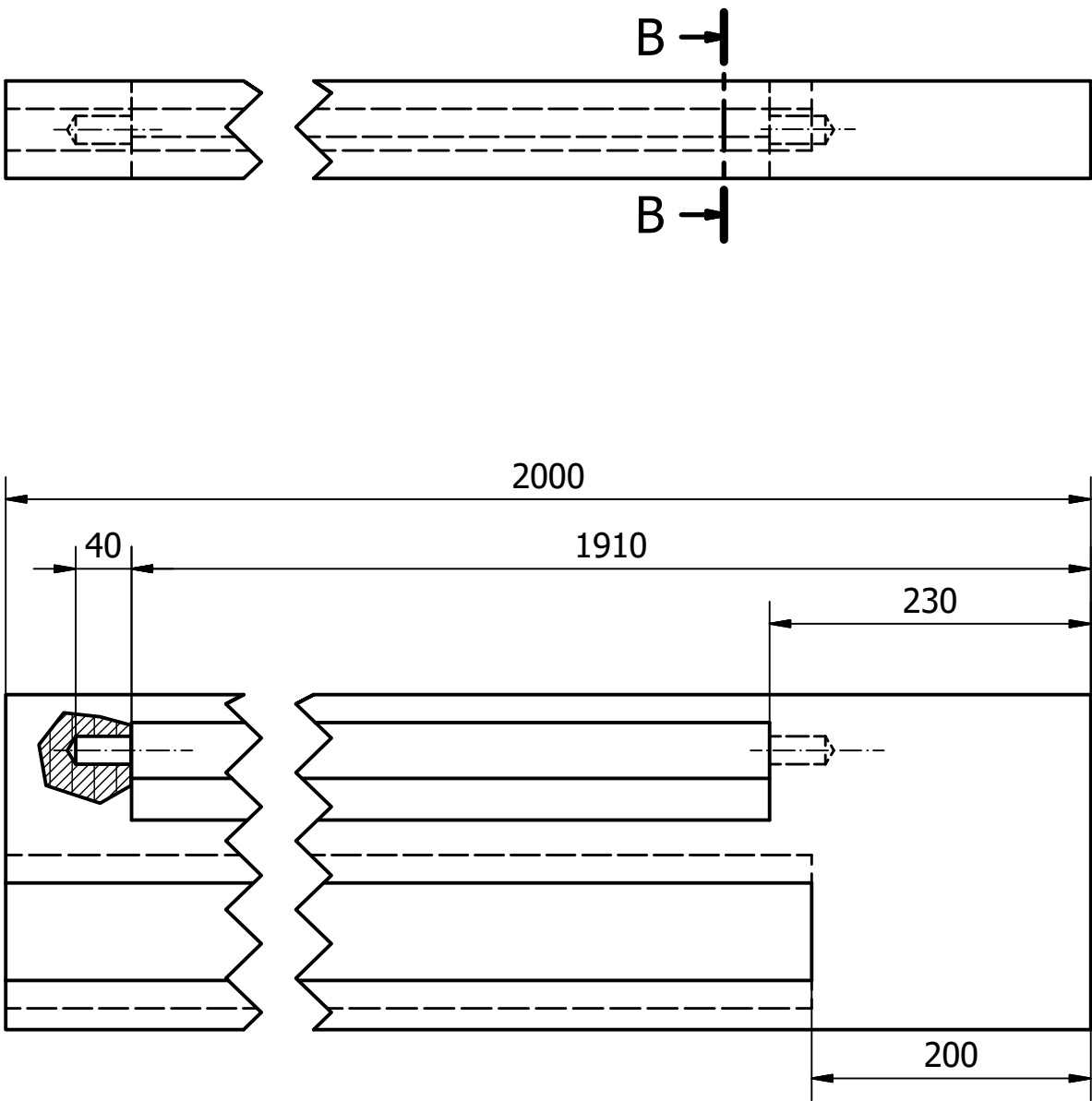


		1	Rangka Meja	9	Besi Hollow	1800 X 400 X 580	Dibuat
		1	Body	8	Kayu	2000 X 250 X 75	Dibuat
		3	Penyangga Joran	7	Kayu	125 X 45 X 210	Dibuat
		1	Rumah Benang	6	Kayu	85 X 75 X 85	Dibuat
		1	Pencekam	5			Standar
		1	Poros	4	Aluminium	Ø20 X 140	Dibuat
		1	Dudukan Spindel	3	Kayu	145 X 50 X 170	Dibuat
		1	Sabuk dan Pulley	2			Standar
		1	Motor Penggerak	1			Standar
JUMLAH		NAMA BAGIAN		No. BGN	MATERIAL	UKURAN	KETERANGAN
III	II	I	Perubahan :				
			ALAT PERAKIT JORAN PANCING				Skala : 1 : 10
			TEKNIK MESIN POLITEKNIK NEGERI SRIWIJAYA				Dibuat Diperiksa Team Junaidi Fatahul
						DRAME : TA / 6 MB / 2020	

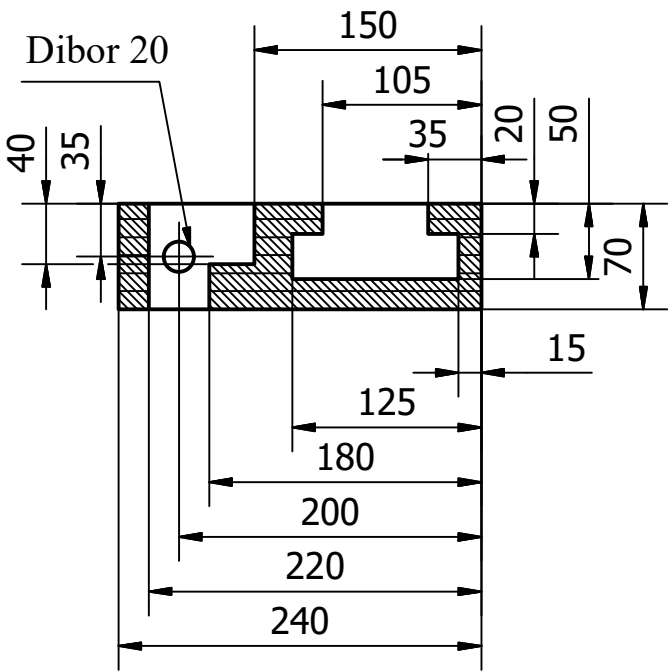
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Gergaji
Tol ± 0,01

Dibor

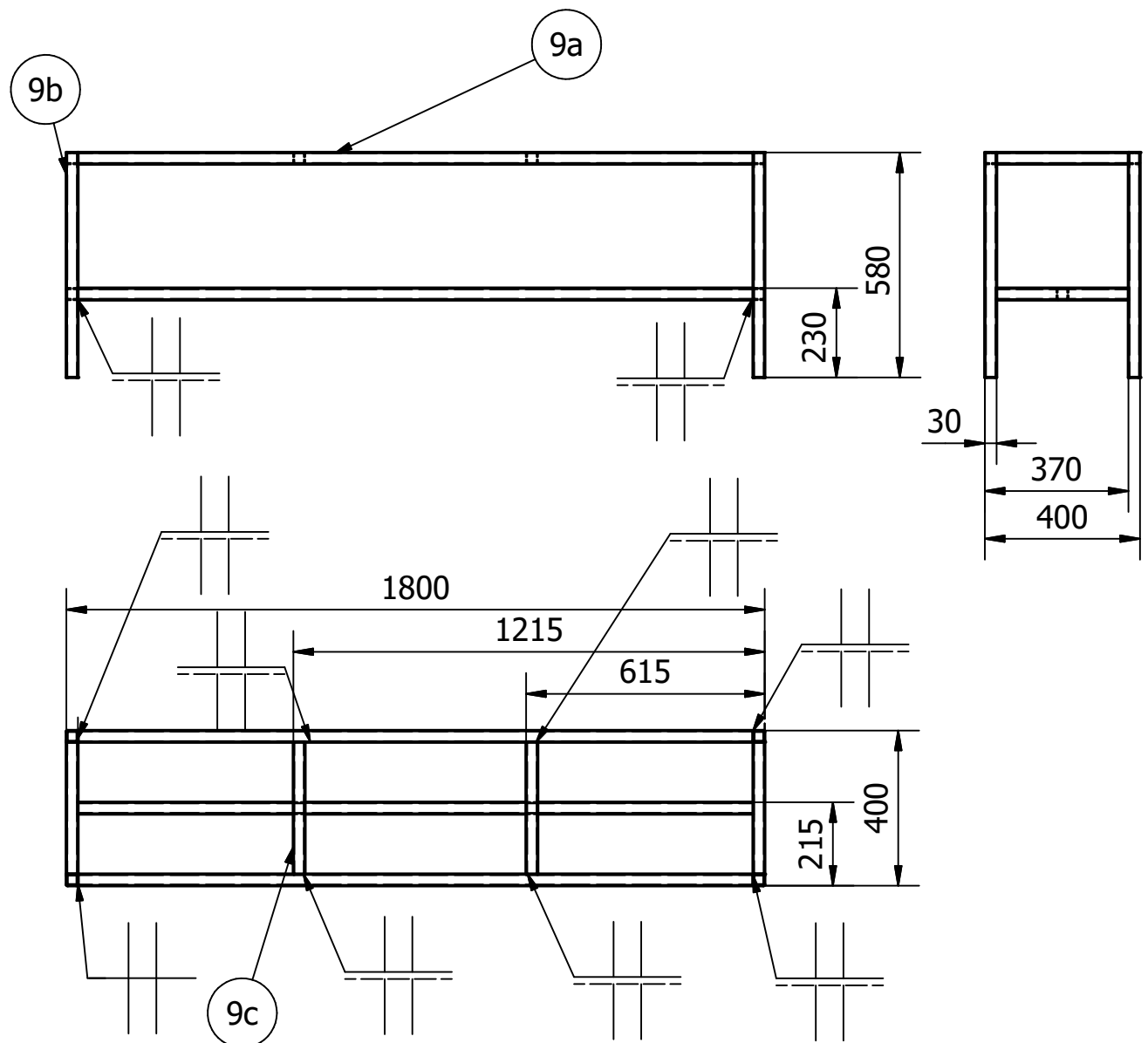


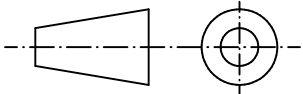
Potongan B-B (1 :5)



		1	Body	8	Kayu	2000 X 250 X 75	Dibuat
JUMLAH			NAMA BAGIAN	No. BGN	MATERIAL	UKURAN	KETERANGAN
III	II	I	Perubahan :				
Body						Skala : 1 : 5	Dibuat
							Team
						Diperiksa	Junaidi Fatahul
TEKNIK MESIN POLITEKNIK NEGERI SRIWIJAYA						DRAME : TA / 6 MB / 2020	

No. 9 $\sqrt{\text{Dilas Tol}\pm 0,01}$

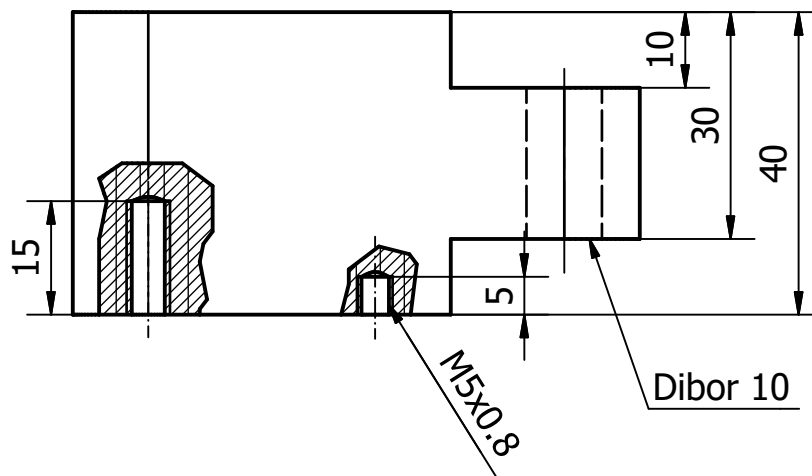
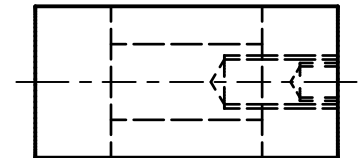
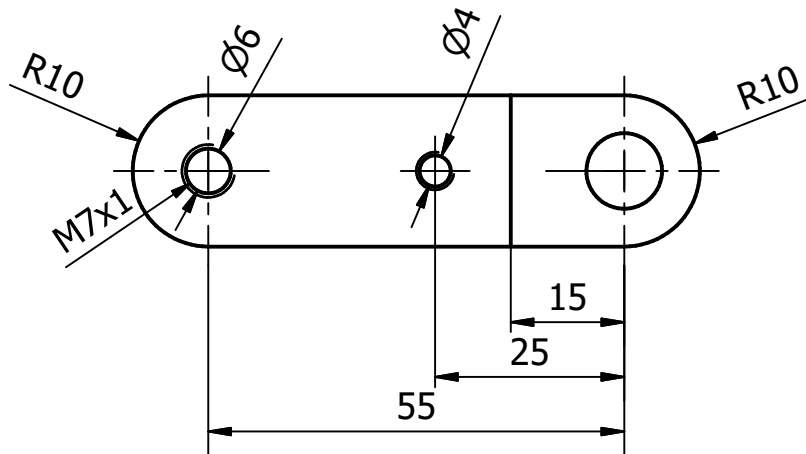


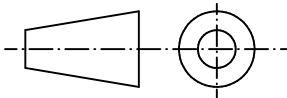
		6	Batang c	9c	Besi Hollow	330 X 30 X30	Dibuat		
		4	Batang b	9b	Besi Hollow	580 X 30 X 30	Dibuat		
		3	Batang a	9a	Besi Hollow	1740 X 30 X 30	Dibuat		
		1	Rangka Meja	9	Besi Hollow	1800 X 400 X 580	Dibuat		
JUMLAH			NAMA BAGIAN	No. BGN	MATERIAL	UKURAN	KETERANGAN		
III	II	I	Perubahan :						
			RANGKA MEJA			Skala : 1 : 15	Dibuat	Team	
							Diperiksa	Junaidi Fatahul	
			TEKNIK MESIN POLITEKNIK NEGERI SRIWIJAYA			DRAME : TA / 6 MB / 2020			

No. 7

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Tol $\pm 0,01$

Bor

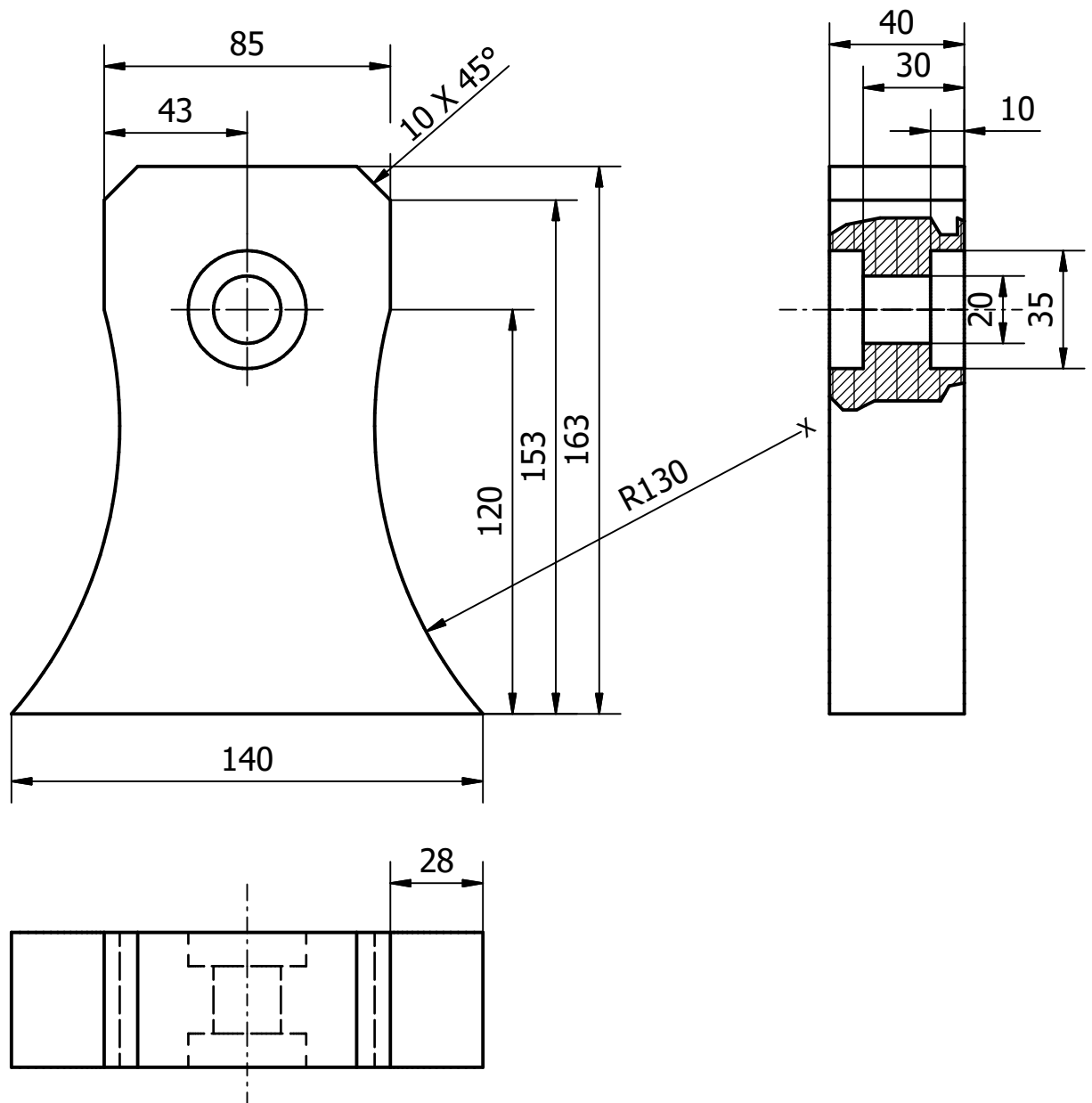


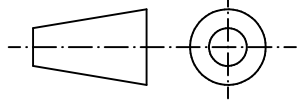
		3	Penyangga atas	7	Kayu	80 X 45 X 25	Dibuat		
JUMLAH			NAMA BAGIAN	No. BGN	MATERIAL	UKURAN	KETERANGAN		
III	II	I	Perubahan :						
			PENYANGGA JORAN			Skala : 1 : 1	Digambar	Team	
							Diperiksa	Junaidi Fatahul	
			JURUSAN TEKNIK MESIN POLITEKNIK NEGERI SRIWIJAYA			DRAME : TA / 6 MB / 2020			

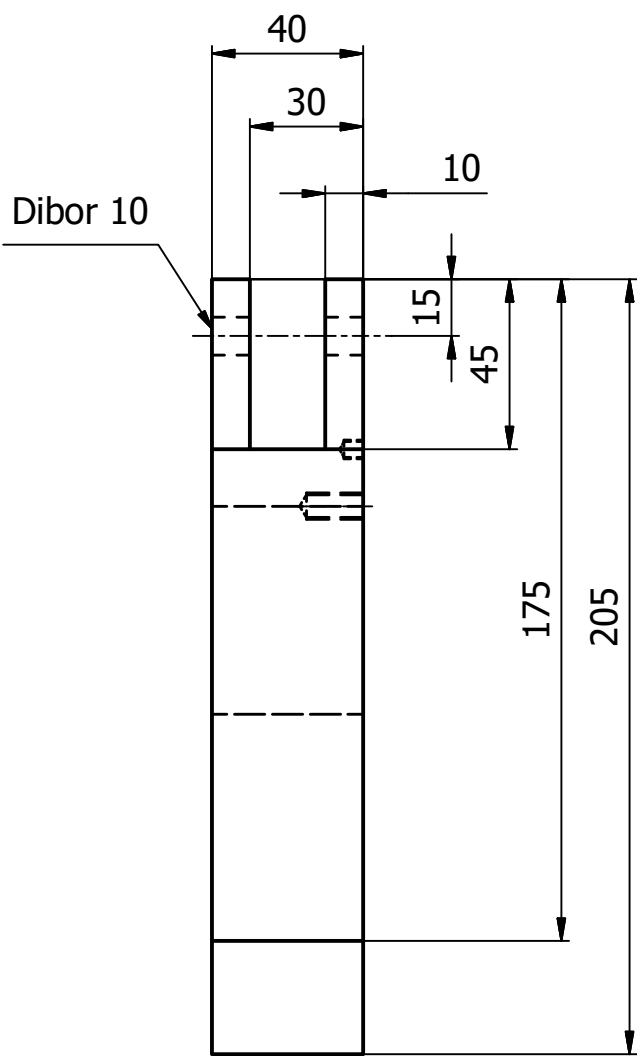
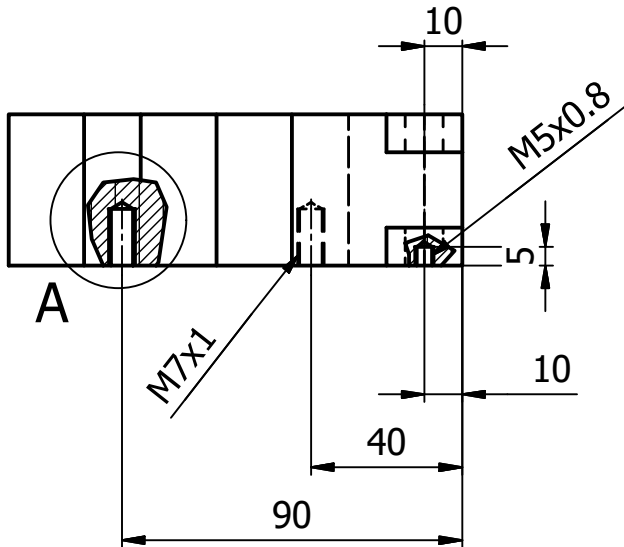
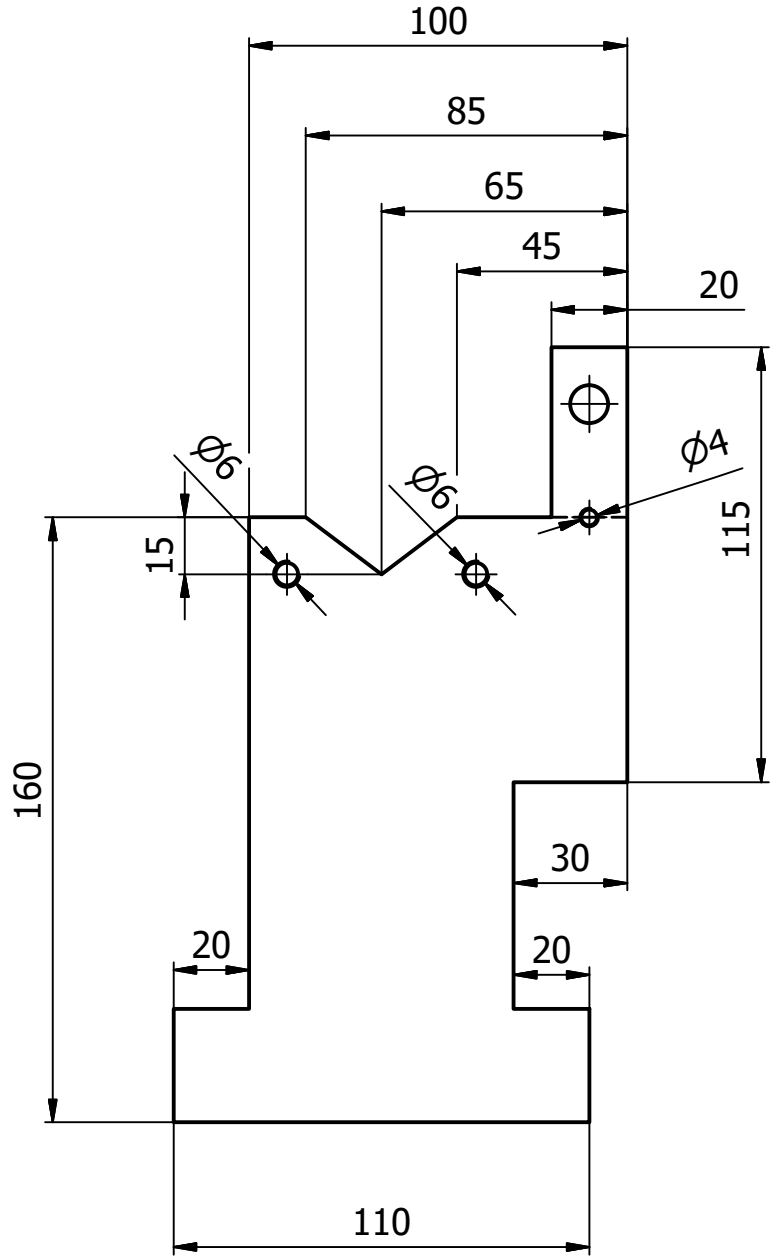
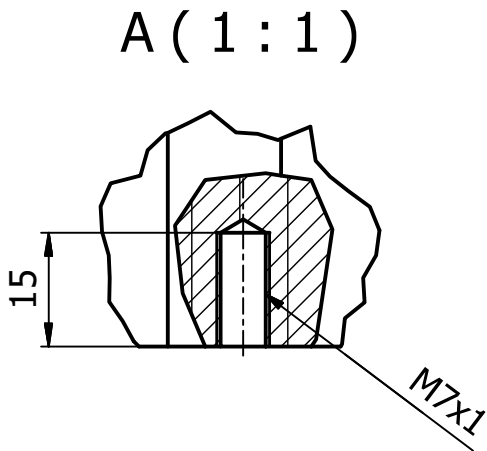
No. 3

Gergaji

Dibor

Tol $\pm 0,01$ 

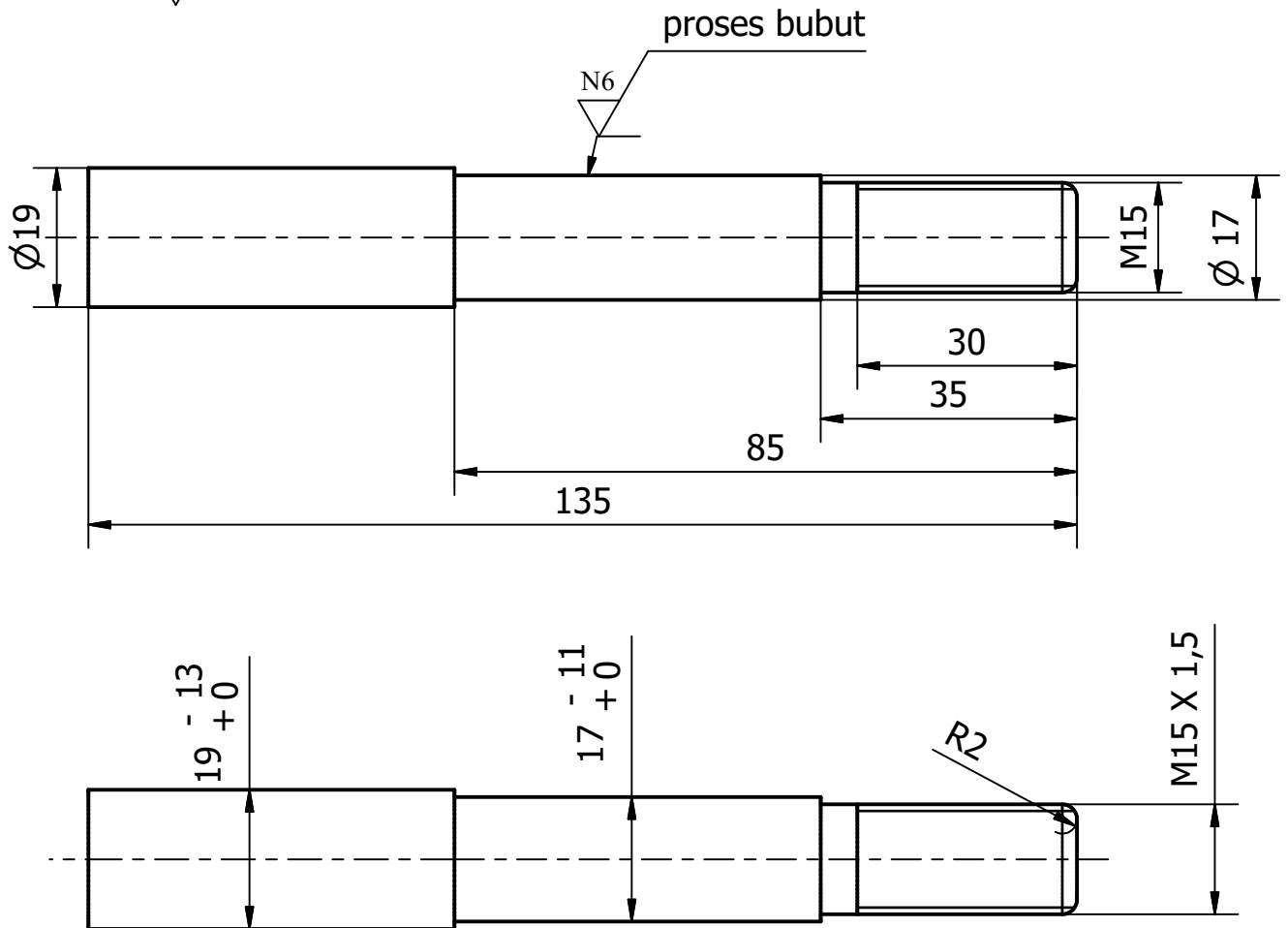
		1	Dudukan Spindel	3	Kayu	145 X 50 X 170	Dibuat
JUMLAH			NAMA BAGIAN	No. BAG	MATERIAL	UKURAN	KETERANGAN
III	II	I	Perubahan :				
			DUDUKAN SPINDEL			Skala : 1 : 2	Dibuat Diperiksa
			TEKNIK MESIN POLITEKNIK NEGERI SRIWIJAYA			DRAME : TA / 6 MB / 2020	

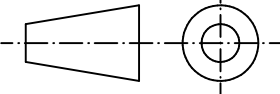


		3	Penyangga Bawah	7	Kayu	125 X 45 X 210	Dibuat
JUMLAH			NAMA BAGIAN	No. BGN	MATERIAL	UKURAN	KETERANGAN
III	II	I	Perubahan :				
			PENYANGGA JORAN				Skala : 1 : 2
			TEKNIK MESIN POLITEKNIK NEGERI SRIWIJAYA				Dibuat Diperiksa Team Junaidi Fatahul
						DRAME : TA / 6 MB / 2020	

No. 4

Bubut
Tol $\pm 0,01$

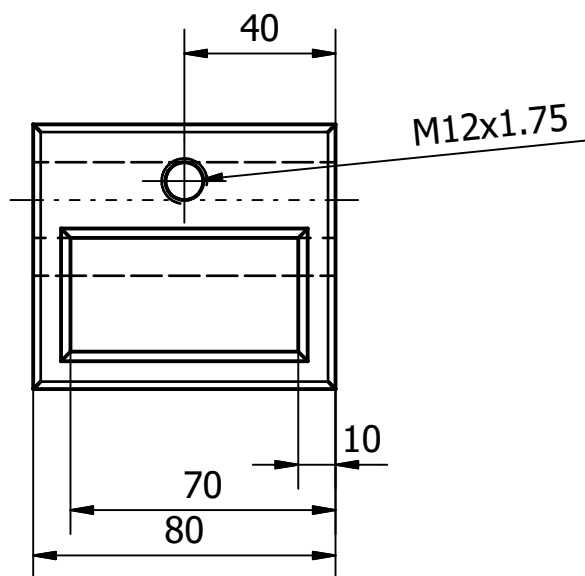
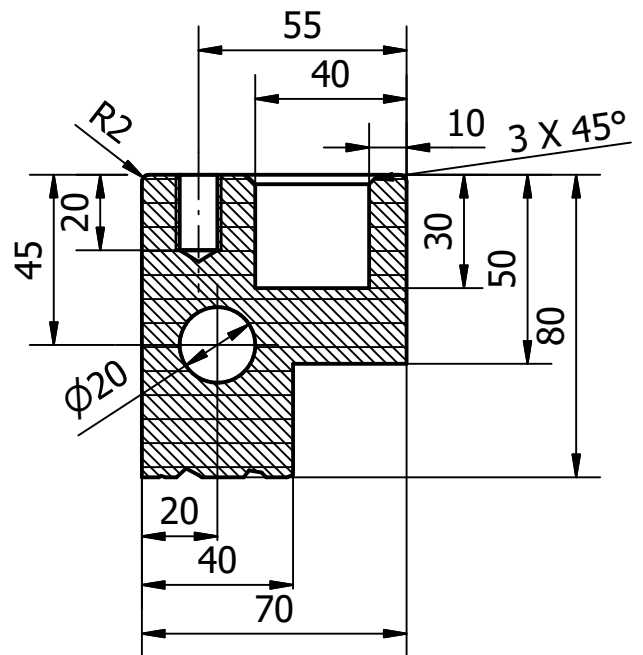
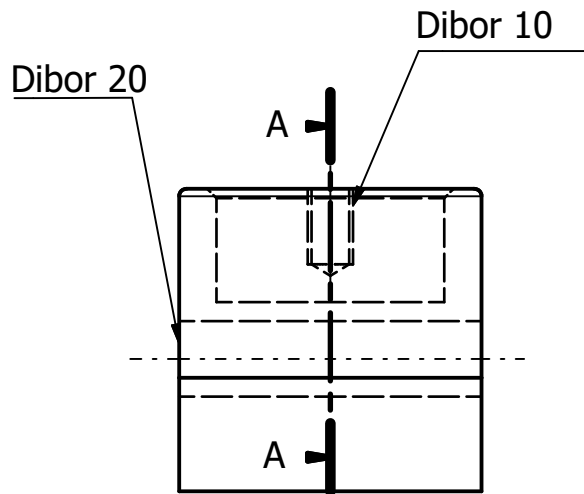


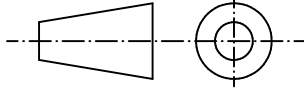
		1	Poros	4	Aluminium	Ø 19 X 140	Dibuat		
JUMLAH			NAMA BAGIAN	No. BGN	MATERIAL	UKURAN	KETERANGAN		
III	II	I	Perubahan :						
			POROS			Skala : 1 : 1	Dibuat	Team	
							Diperiksa	Junaidi Fatahul	
			TEKNIK MESIN POLITEKNIK NEGERI SRIWIJAYA			DRAME : TA / 6 MB / 2020			

NO. 6 

Digergaji

Potongan A-A (1 : 2)



		1	Rumah benang	6	Kayu	85 X 75 X 85	Dibuat		
JUMLAH			NAMA BAGIAN	No. BAG	MATERIAL	UKURAN	KETERANGAN		
III	II	I	Perubahan :						
			RUMAH BENANG			Skala : 1 : 2	Dibuat	Team	
							Diperiksa	Junaidi Fatahul	
			TEKNIK MESIN POLITEKNIK NEGERI SRIWIJAYA				DRAME : TA / 6 MB / 2020		