

LAMPIRAN





**LABORATORIUM MATERIAL TEKNIK MESIN
UNIVERSITAS SEBELAS MARET**

SURAT KETERANGAN

Laboratorium Material Teknik Mesin UNS menerangkan bahwa :

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NIM : 1421504713

Institusi : Universitas 17 Agustus 1945 (UNTAG) Surabaya
Jln. Semolowaru No 45 Surabaya

Telah melakukan penelitian pengujian Tarik dengan judul “Rancang bangun mesin uji tarik uji bending dan uji tekan untuk pengujian bahan komposit dan polimer“ pada tanggal 31 Oktober 2019 di laboratorium Material Teknik Mesin UNS.

Demikian surat ini dibuat untuk dapat dipergunakan sebagaimana mestinya.

Surakarta, 31 Oktober 2019

Kepala Laboratorium
Material Teknik Mesin UNS



Dr. Ir. Wijang Wisnu Raharjo. MT.

NIP 196810041999031002



KEMENTERIAN RISET TEKNOLOGI DAN PENDIDIKAN TINGGI
UNIVERSITAS SEBELAS MARET
FAKULTAS TEKNIK PROGRAM STUDI TEKNIK MESIN
LABORATORIUM MATERIAL
Jln. Ir. Sutami 36a Kentingan Surakarta 57136 telp (0271) 632163
Website : www.mesin.uns.ac.id

TABEL HASIL UJI TARIK

No	Nama Spesimen	Tebal (mm)	Lebar (mm)	Panjang (mm)	Luas (mm ²)	Gaya Max (kN)
1	Polyethylene	5	13	57	65	1.92
2	Polyethylene	5	13	57	65	1.88
3	Polyethylene	5	13	57	65	1.89
4	Polyethylene	5	13	57	65	1.93
5	Polyethylene	5	13	57	65	1.96

TABEL HASIL UJI BENDING

No	Nama Spesimen	Tebal (mm)	Lebar (mm)	Panjang (mm)	Luas (mm ²)	Gaya Max (N)
1	Polyethylene	5	12.7	70	63.5	0.1
2	Polyethylene	5	12.7	70	63.5	0.11
3	Polyethylene	5	12.7	70	63.5	0.12
4	Polyethylene	5	12.7	70	63.5	0.1
5	Polyethylene	5	12.7	70	63.5	0.13

Surakarta, 30 Oktober 2019
Kepala Lab Material Teknik Mesin

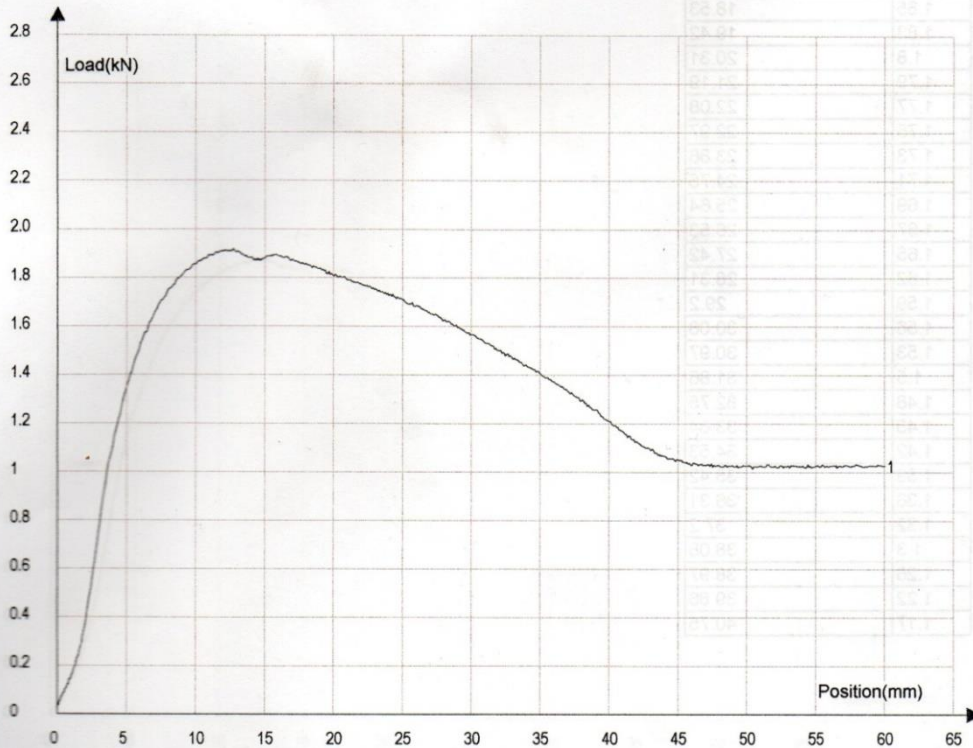
Dr. Ir. Wijang Wisnu Raharjo, MT.
NIP 196810041999031002

Metallic materials-Tensile Testing Report

Standard: BS EN10002-1:2001

Name ID	a	au	b	bu	Lo	Lu	So	Su	ReH
	mm	mm	mm	mm	mm	mm	mm ²	mm ²	MPa
NO.1	5.00		13.00		57.00		65.00		

Name ID	Rm	Fm
	MPa	kN
NO.1	30	1.92



Gaya	Pertambahan panjang
N	mm
0	0
0.03	0.01
0.05	0.17
0.1	0.53
0.17	1.08
0.3	1.74
0.59	2.57
1	3.57
1.27	4.64
1.48	5.71
1.62	6.78
1.72	7.84
1.8	8.91
1.85	9.97
1.89	11.04
1.91	12.11
1.9	13.17
1.88	14.15
1.88	14.99
1.89	15.86
1.88	16.75
1.86	17.64
1.85	18.53
1.83	19.42
1.8	20.31
1.79	21.19
1.77	22.08
1.75	22.97
1.73	23.86
1.71	24.75
1.69	25.64
1.67	26.53
1.65	27.42
1.62	28.31
1.59	29.2
1.56	30.08
1.53	30.97
1.5	31.86
1.48	32.75
1.45	33.64
1.42	34.53
1.39	35.42
1.36	36.31
1.32	37.2
1.3	38.08
1.26	38.97
1.22	39.86
1.17	40.75

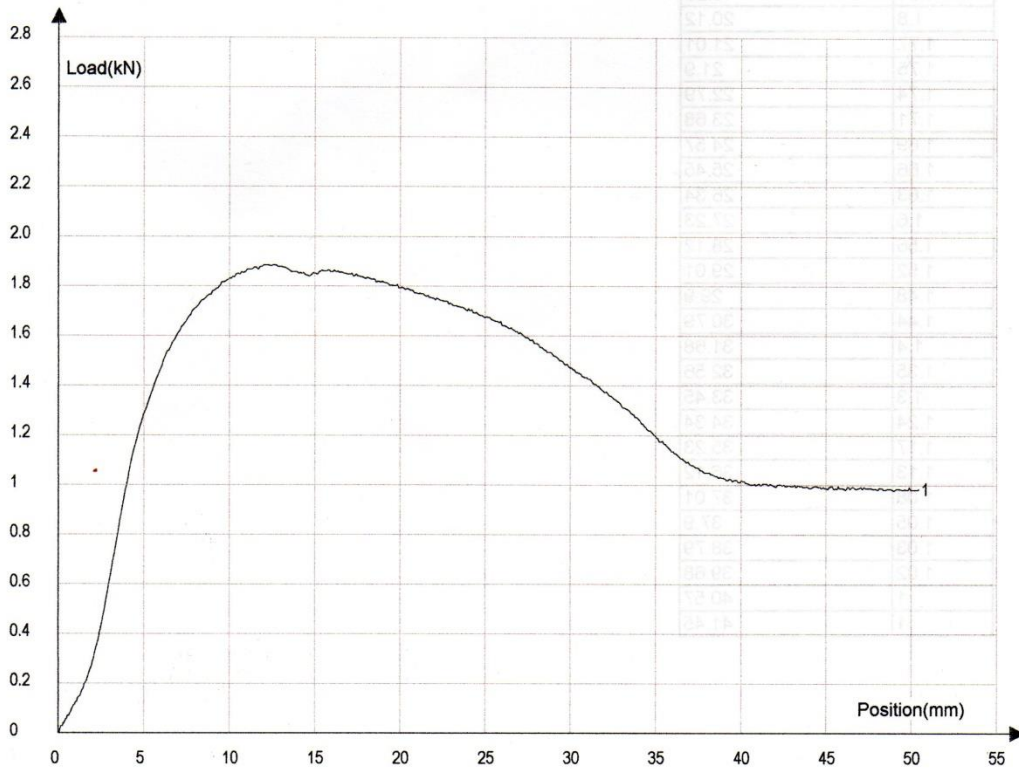
Gaya	Pertambahan panjang
N	mm
1.14	41.64
1.11	42.53
1.08	43.42
1.06	44.31
1.05	45.19
1.04	46.08
1.03	46.97
1.03	47.86
1.03	48.75
1.02	49.64
1.02	50.53
1.03	51.42
1.02	52.31
1.03	53.19
1.03	54.08
1.03	54.97
1.03	55.86
1.03	56.75
1.03	57.64
1.02	58.53
1.03	59.41

Metallic materials-Tensile Testing Report

Standard: BS EN10002-1:2001

Name	a	au	b	bu	Lo	Lu	So	Su	ReH
ID	mm	mm	mm	mm	mm	mm	mm ²	mm ²	MPa
NO.1	5.00		13.00		57.00		65.00		

Name	Rm	Fm
ID	MPa	kN
NO.1	29	1.88



Tester:

Audit:

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2)

Gaya	Pertambahan panjang
N	mm
0	0
0.03	0.14
0.06	0.47
0.13	0.99
0.21	1.63
0.4	2.41
0.77	3.37
1.14	4.43
1.38	5.5
1.56	6.57
1.68	7.64
1.76	8.7
1.82	9.77
1.85	10.84
1.88	11.91
1.88	12.97
1.86	13.98
1.85	14.83
1.86	15.68
1.86	16.57
1.85	17.45
1.83	18.34
1.81	19.23
1.8	20.12
1.77	21.01
1.75	21.9
1.74	22.79
1.71	23.68
1.69	24.57
1.66	25.45
1.63	26.34
1.6	27.23
1.56	28.12
1.52	29.01
1.48	29.9
1.44	30.79
1.4	31.68
1.35	32.56
1.3	33.45
1.24	34.34
1.17	35.23
1.13	36.12
1.08	37.01
1.05	37.9
1.03	38.79
1.02	39.68
1	40.57
1	41.45

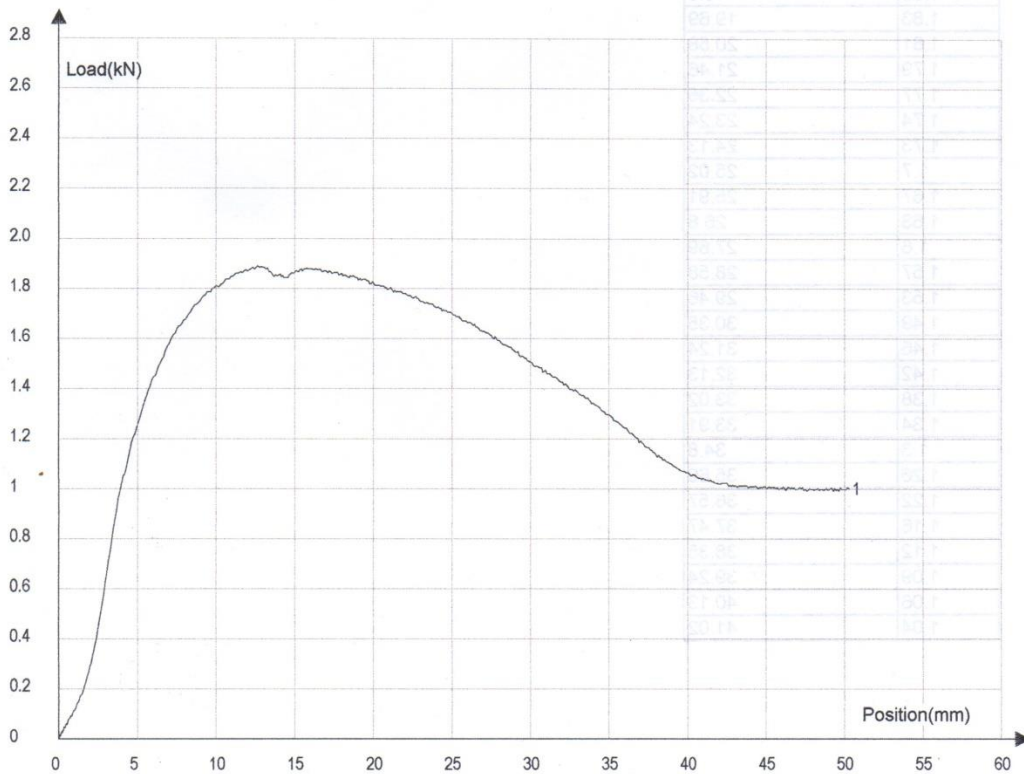
Gaya	Pertambahan panjang
N	mm
1	42.34
0.99	43.23
0.99	44.12
0.99	45.01
0.99	45.9
0.98	46.79
0.99	47.68
0.98	48.57
0.98	49.46
0.98	50.34

Metallic materials-Tensile Testing Report

Standard: BS EN10002-1:2001

Name	a	au	b	bu	Lo	Lu	So	Su	ReH
ID	mm	mm	mm	mm	mm	mm	mm ²	mm ²	MPa
NO.1	5.00		13.00		57.00		65.00		

Name	Rm	Fm
ID	MPa	kN
NO.1	29	1.89



Tester:

Audit:

1/1

Gaya N	Pertambahan panjang mm
0	0
0.01	0.05
0.03	0.28
0.08	0.71
0.16	1.3
0.29	1.99
0.58	2.86
0.99	3.89
1.25	4.96
1.45	6.03
1.59	7.1
1.68	8.16
1.77	9.23
1.82	10.3
1.86	11.37
1.88	12.43
1.87	13.48
1.84	14.41
1.87	15.25
1.88	16.13
1.87	17.02
1.86	17.91
1.85	18.8
1.83	19.69
1.81	20.58
1.79	21.46
1.77	22.35
1.74	23.24
1.73	24.13
1.7	25.02
1.67	25.91
1.63	26.8
1.6	27.69
1.57	28.58
1.53	29.46
1.49	30.35
1.46	31.24
1.42	32.13
1.38	33.02
1.34	33.91
1.3	34.8
1.26	35.69
1.22	36.57
1.16	37.47
1.12	38.35
1.09	39.24
1.06	40.13
1.04	41.02

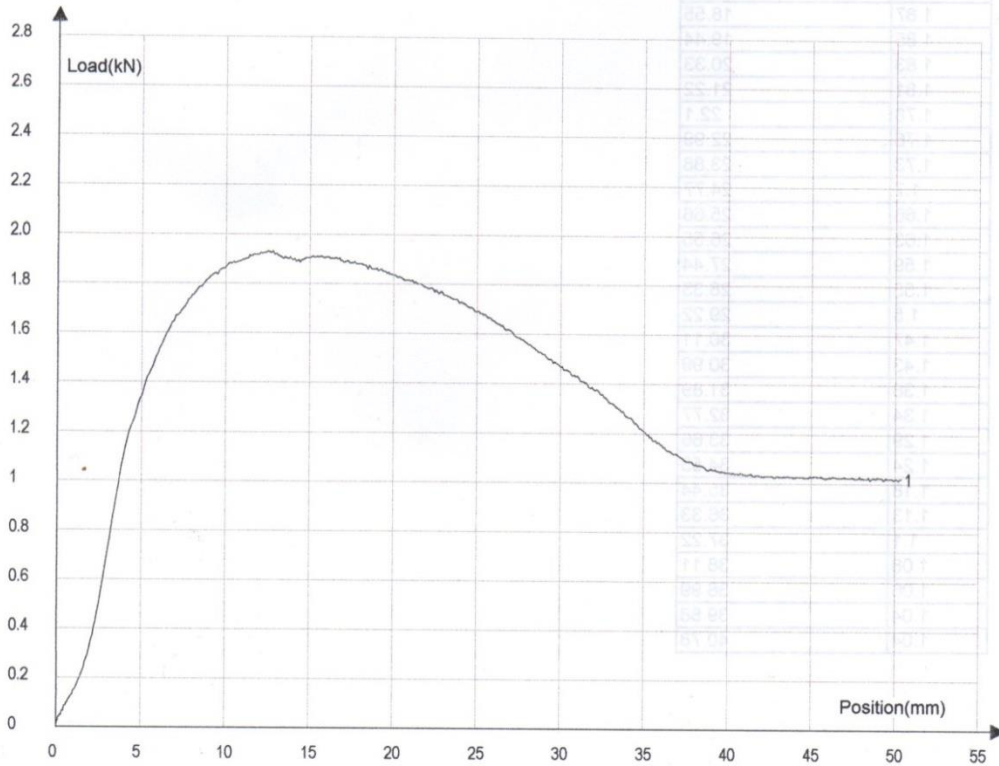
Gaya N	Pertambahan panjang mm
1.02	41.91
1.01	42.8
1.01	43.69
1	44.58
1	45.46
1	46.35
1	47.24
1	48.13
1	49.02
1	49.91

Metallic materials-Tensile Testing Report

Standard: BS EN10002-1:2001

Name	a	au	b	bu	Lo	Lu	So	Su	ReH
ID	mm	mm	mm	mm	mm	mm	mm ²	mm ²	MPa
NO.1	5.00		13.00		57.00		65.00		

Name	Rm	Fm
ID	MPa	kN
NO.1	30	1.93



Tester:

Audit:

Gaya N	Pertambahan panjang mm
0	0
0.01	0.01
0.05	0.2
0.1	0.58
0.17	1.14
0.3	1.81
0.57	2.63
0.98	3.63
1.28	4.7
1.48	5.77
1.64	6.83
1.74	7.9
1.82	8.97
1.87	10.04
1.9	11.1
1.92	12.17
1.91	13.22
1.89	14.17
1.9	15
1.9	15.88
1.9	16.77
1.89	17.66
1.87	18.55
1.85	19.44
1.83	20.33
1.81	21.22
1.78	22.1
1.76	22.99
1.73	23.88
1.7	24.77
1.66	25.66
1.63	26.55
1.59	27.44
1.55	28.33
1.5	29.22
1.47	30.11
1.43	30.99
1.38	31.89
1.34	32.77
1.29	33.66
1.24	34.55
1.18	35.44
1.13	36.33
1.1	37.22
1.08	38.11
1.06	38.99
1.04	39.88
1.04	40.78

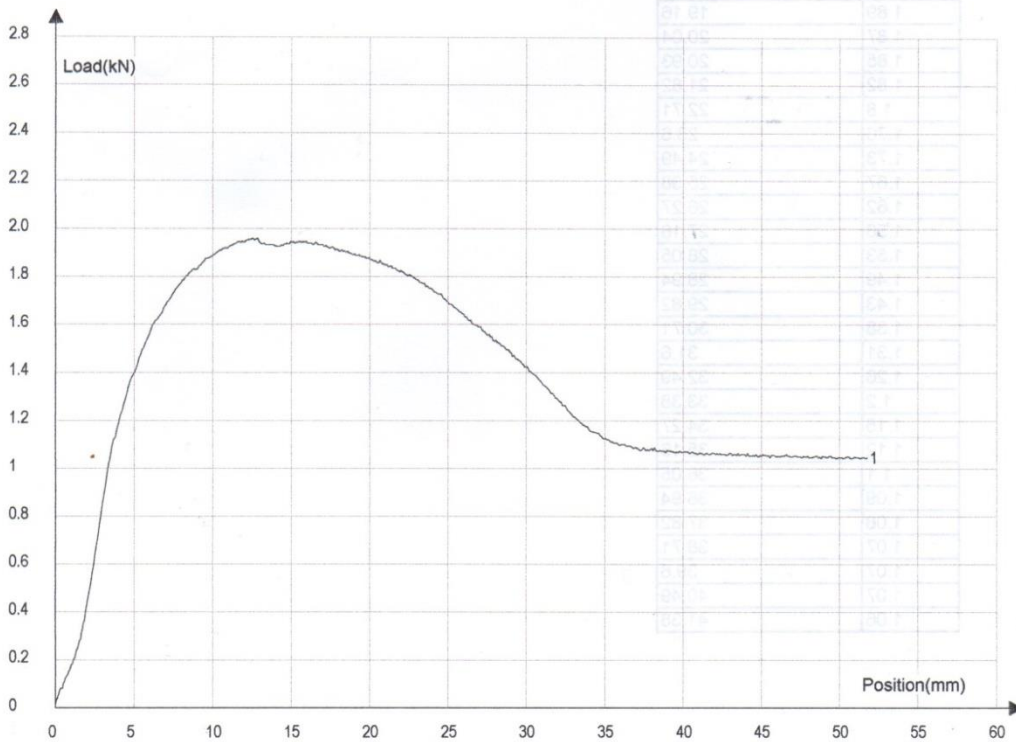
Gaya N	Pertambahan panjang mm
1.03	41.66
1.03	42.55
1.03	43.44
1.03	44.33
1.03	45.22
1.03	46.11
1.03	47
1.03	47.88
1.03	48.77
1.02	49.66

Metallic materials-Tensile Testing Report

Standard: BS EN10002-1:2001

Name	a	au	b	bu	Lo	Lu	So	Su	ReH
ID	mm	mm	mm	mm	mm	mm	mm ²	mm ²	MPa
NO.1	5.00		13.00		57.00		65.00		

Name	Rm	Fm
ID	MPa	kN
NO.1	30	1.96



Tester:

Audit:

1/1

Gaya N	Pertambahan panjang mm
0.01	0
0.04	0.11
0.08	0.42
0.17	0.93
0.28	1.57
0.56	2.32
0.98	3.27
1.27	4.34
1.47	5.4
1.62	6.47
1.73	7.54
1.82	8.61
1.87	9.67
1.92	10.74
1.94	11.81
1.96	12.88
1.93	13.87
1.94	14.73
1.94	15.6
1.94	16.49
1.92	17.38
1.91	18.27
1.89	19.16
1.87	20.04
1.85	20.93
1.82	21.82
1.8	22.71
1.76	23.6
1.73	24.49
1.67	25.38
1.62	26.27
1.58	27.16
1.53	28.05
1.49	28.94
1.43	29.82
1.38	30.71
1.31	31.6
1.26	32.49
1.2	33.38
1.15	34.27
1.12	35.16
1.1	36.05
1.09	36.94
1.08	37.82
1.07	38.71
1.07	39.6
1.07	40.49
1.06	41.38

Gaya N	Pertambahan panjang mm
1.06	42.27
1.06	43.16
1.05	44.05
1.06	44.94
1.06	45.82
1.05	46.71
1.05	47.6
1.05	48.49
1.05	49.38
1.04	50.27
1.05	51.16

Metallic materials-Bend Test Testing Report

Name	diameter of specimen(d)	maximum force(Fm)
ID	mm	kN
NO.1	10.00	0.10

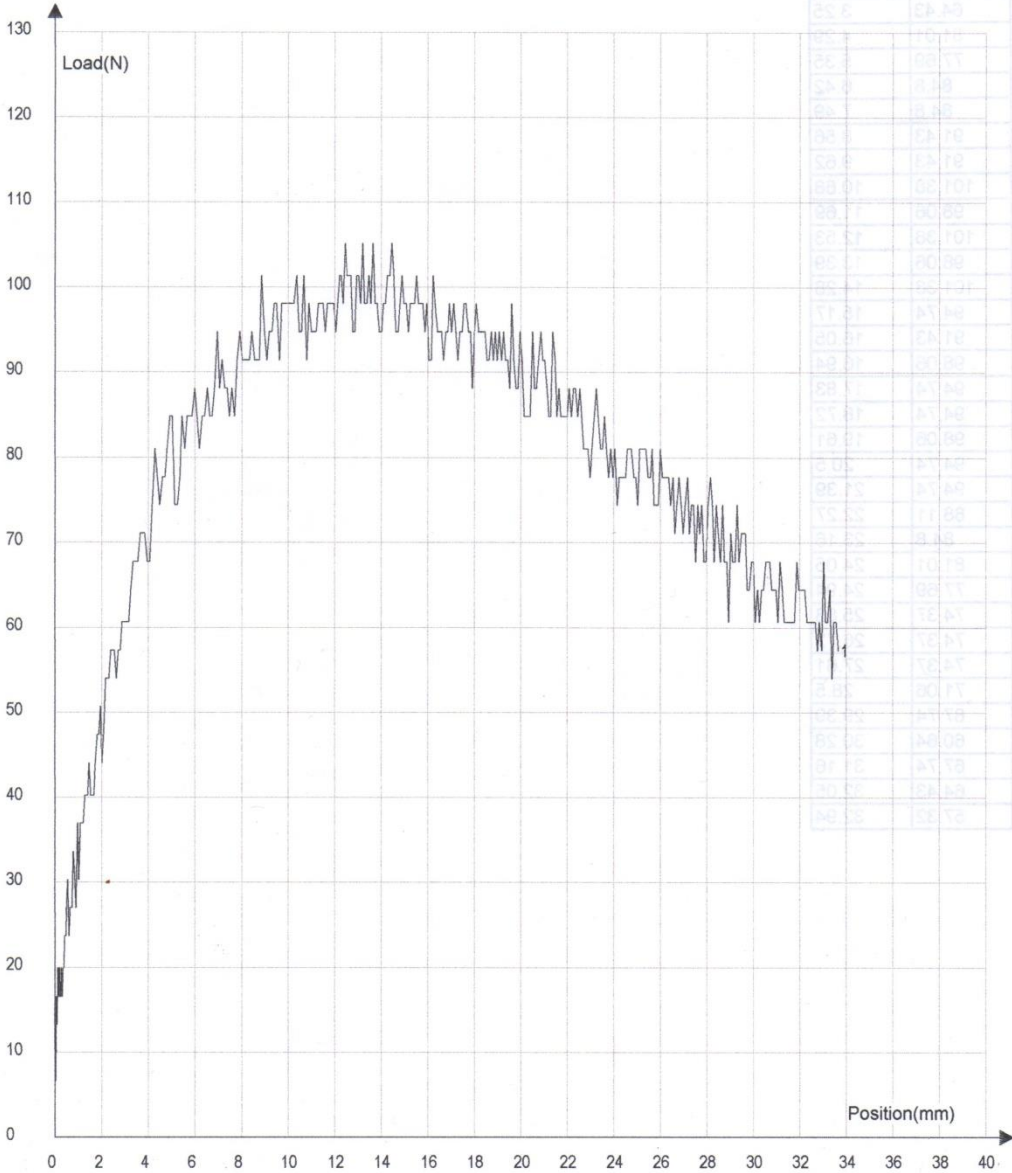
Deflexion	Force
mm	kN
0	0
1.25	13.25
2.5	23.5
3.75	30.5
5	38.5
6.25	45.5
7.5	52.5
8.75	60.5
10	68.5
11.25	75.5
12.5	82.5
13.75	88.5
15	92.5
16.25	95.5
17.5	97.5
18.75	98.5
20	99.5
21.25	100.5
22.5	101.5
23.75	102.5
25	103.5
26.25	104.5
27.5	105.5
28.75	106.5
30	107.5
31.25	108.5
32.5	109.5
33.75	110.5
35	111.5
36.25	112.5
37.5	113.5
38.75	114.5
40	115.5
41.25	116.5
42.5	117.5
43.75	118.5
45	119.5
46.25	120.5
47.5	121.5
48.75	122.5
50	123.5
51.25	124.5
52.5	125.5
53.75	126.5
55	127.5
56.25	128.5
57.5	129.5
58.75	130.5
60	131.5
61.25	132.5
62.5	133.5
63.75	134.5
65	135.5
66.25	136.5
67.5	137.5
68.75	138.5
70	139.5
71.25	140.5
72.5	141.5
73.75	142.5
75	143.5
76.25	144.5
77.5	145.5
78.75	146.5
80	147.5
81.25	148.5
82.5	149.5
83.75	150.5
85	151.5
86.25	152.5
87.5	153.5
88.75	154.5
90	155.5
91.25	156.5
92.5	157.5
93.75	158.5
95	159.5
96.25	160.5
97.5	161.5
98.75	162.5
100	163.5
101.25	164.5
102.5	165.5
103.75	166.5
105	167.5
106.25	168.5
107.5	169.5
108.75	170.5
110	171.5
111.25	172.5
112.5	173.5
113.75	174.5
115	175.5
116.25	176.5
117.5	177.5
118.75	178.5
120	179.5
121.25	180.5
122.5	181.5
123.75	182.5
125	183.5
126.25	184.5
127.5	185.5
128.75	186.5
130	187.5
131.25	188.5
132.5	189.5
133.75	190.5
135	191.5
136.25	192.5
137.5	193.5
138.75	194.5
140	195.5
141.25	196.5
142.5	197.5
143.75	198.5
145	199.5
146.25	200.5
147.5	201.5
148.75	202.5
150	203.5
151.25	204.5
152.5	205.5
153.75	206.5
155	207.5
156.25	208.5
157.5	209.5
158.75	210.5
160	211.5
161.25	212.5
162.5	213.5
163.75	214.5
165	215.5
166.25	216.5
167.5	217.5
168.75	218.5
170	219.5
171.25	220.5
172.5	221.5
173.75	222.5
175	223.5
176.25	224.5
177.5	225.5
178.75	226.5
180	227.5
181.25	228.5
182.5	229.5
183.75	230.5
185	231.5
186.25	232.5
187.5	233.5
188.75	234.5
190	235.5
191.25	236.5
192.5	237.5
193.75	238.5
195	239.5
196.25	240.5
197.5	241.5
198.75	242.5
200	243.5
201.25	244.5
202.5	245.5
203.75	246.5
205	247.5
206.25	248.5
207.5	249.5
208.75	250.5
210	251.5
211.25	252.5
212.5	253.5
213.75	254.5
215	255.5
216.25	256.5
217.5	257.5
218.75	258.5
220	259.5
221.25	260.5
222.5	261.5
223.75	262.5
225	263.5
226.25	264.5
227.5	265.5
228.75	266.5
230	267.5
231.25	268.5
232.5	269.5
233.75	270.5
235	271.5
236.25	272.5
237.5	273.5
238.75	274.5
240	275.5
241.25	276.5
242.5	277.5
243.75	278.5
245	279.5
246.25	280.5
247.5	281.5
248.75	282.5
250	283.5
251.25	284.5
252.5	285.5
253.75	286.5
255	287.5
256.25	288.5
257.5	289.5
258.75	290.5
260	291.5
261.25	292.5
262.5	293.5
263.75	294.5
265	295.5
266.25	296.5
267.5	297.5
268.75	298.5
270	299.5
271.25	300.5
272.5	301.5
273.75	302.5
275	303.5
276.25	304.5
277.5	305.5
278.75	306.5
280	307.5
281.25	308.5
282.5	309.5
283.75	310.5
285	311.5
286.25	312.5
287.5	313.5
288.75	314.5
290	315.5
291.25	316.5
292.5	317.5
293.75	318.5
295	319.5
296.25	320.5
297.5	321.5
298.75	322.5
300	323.5
301.25	324.5
302.5	325.5
303.75	326.5
305	327.5
306.25	328.5
307.5	329.5
308.75	330.5
310	331.5
311.25	332.5
312.5	333.5
313.75	334.5
315	335.5
316.25	336.5
317.5	337.5
318.75	338.5
320	339.5
321.25	340.5
322.5	341.5
323.75	342.5
325	343.5
326.25	344.5
327.5	345.5
328.75	346.5
330	347.5
331.25	348.5
332.5	349.5
333.75	350.5
335	351.5
336.25	352.5
337.5	353.5
338.75	354.5
340	355.5
341.25	356.5
342.5	357.5
343.75	358.5
345	359.5
346.25	360.5
347.5	361.5
348.75	362.5
350	363.5
351.25	364.5
352.5	365.5
353.75	366.5
355	367.5
356.25	368.5
357.5	369.5
358.75	370.5
360	371.5
361.25	372.5
362.5	373.5
363.75	374.5
365	375.5
366.25	376.5
367.5	377.5
368.75	378.5
370	379.5
371.25	380.5
372.5	381.5
373.75	382.5
375	383.5
376.25	384.5
377.5	385.5
378.75	386.5
380	387.5
381.25	388.5
382.5	389.5
383.75	390.5
385	391.5
386.25	392.5
387.5	393.5
388.75	394.5
390	395.5
391.25	396.5
392.5	397.5
393.75	398.5
395	399.5
396.25	400.5
397.5	401.5
398.75	402.5
400	403.5
401.25	404.5
402.5	405.5
403.75	406.5
405	407.5
406.25	408.5
407.5	409.5
408.75	410.5
410	411.5
411.25	412.5
412.5	413.5
413.75	414.5
415	415.5
416.25	416.5
417.5	417.5
418.75	418.5
420	419.5
421.25	420.5
422.5	421.5
423.75	422.5
425	423.5
426.25	424.5
427.5	425.5
428.75	426.5
430	427.5
431.25	428.5
432.5	429.5
433.75	430.5
435	431.5
436.25	432.5
437.5	433.5
438.75	434.5
440	435.5
441.25	436.5
442.5	437.5
443.75	438.5
445	439.5
446.25	440.5
447.5	441.5
448.75	442.5
450	443.5
451.25	444.5
452.5	445.5
453.75	446.5
455	447.5
456.25	448.5
457.5	449.5
458.75	450.5
460	451.5
461.25	452.5
462.5	453.5
463.75	454.5
465	455.5
466.25	456.5
467.5	457.5
468.75	458.5
470	459.5
471.25	460.5
472.5	461.5
473.75	462.5
475	463.5
476.25	464.5
477.5	465.5
478.75	466.5
480	467.5
481.25	468.5
482.5	469.5
483.75	470.5
485	471.5
486.25	472.5
487.5	473.5
488.75	474.5
490	475.5
491.25	476.5
492.5	477.5
493.75	478.5
495	479.5
496.25	480.5
497.5	481.5
498.75	482.5
500	483.5
501.25	484.5
502.5	485.5
503.75	486.5
505	487.5
506.25	488.5
507.5	489.5
508.75	490.5
510	491.5
511.25	492.5
512.5	493.5
513.75	494.5
515	495.5
516.25	496.5
517.5	497.5
518.75	498.5
520	499.5
521.25	500.5
522.5	501.5
523.75	502.5
525	503.5
526.25	504.5
527.5	505.5
528.75	506.5
530	507.5
531.25	508.5
532.5	509.5
533.75	510.5
535	511.5
536.25	512.5
537.5	513.5
538.75	514.5
540	515.5
541.25	516.5
542.5	517.5
543.75	518.5
545	519.5
546.25	520.5
547.5	521.5
548.75	522.5
550	523.5
551.25	524.5
552.5	525.5
553.75	526.5
555	527.5
556.25	528.5
557.5	529.5
558.75	530.5
560	531.5
561.25	532.5
562.5	533.5
563.75	534.5
565	535.5
566.25	536.5
567.5	537.5
568.75	538.5
570	539.5
571.25	540.5
572.5	541.5
573.75	542.5
575	543.5
576.25	544.5
577.5	545.5
578.75	546.5
580	547.5
581.25	548.5
582.5	549.5
583.75	550.5
585	551.5
586.25	552.5
587.5	553.5
588.75	554.5
590	555.5
591.25	556.5
592.5	557.5
593.75	558.5
595	559.5
596.25	560.5
597.5	561.5
598.75	562.5
600	563.5
601.25	564.5
602.5	565.5
603.75	566.5
605	

Gaya N	Defleksi mm
13.26	0.01
16.58	0.16
27	0.5
30.32	1.02
40.27	1.66
57.32	2.38
64.43	3.25
81.01	4.29
77.69	5.35
84.8	6.42
84.8	7.49
91.43	8.56
91.43	9.62
101.38	10.68
98.06	11.69
101.38	12.53
98.06	13.39
101.38	14.28
94.74	15.17
91.43	16.05
98.06	16.94
94.74	17.83
94.74	18.72
98.06	19.61
94.74	20.5
94.74	21.39
88.11	22.27
84.8	23.16
81.01	24.05
77.69	24.94
74.37	25.83
74.37	26.72
74.37	27.61
71.06	28.5
67.74	29.39
60.64	30.28
67.74	31.16
64.43	32.05
57.32	32.94

Metallic materials-Bend Test Testing Report

Name	diameter of specimen(d)	maximum force(Fm)
ID	mm	kN
NO.1	10.00	0.11

Deflection (mm)	Force (N)
0.0	15.51
0.1	18.81
0.2	22.11
0.3	25.41
0.4	28.71
0.5	32.01
0.6	35.31
0.7	38.61
0.8	41.91
0.9	45.21
1.0	48.51
1.1	51.81
1.2	55.11
1.3	58.41
1.4	61.71
1.5	65.01
1.6	68.31
1.7	71.61
1.8	74.91
1.9	78.21
2.0	81.51
2.1	84.81
2.2	88.11
2.3	91.41
2.4	94.71
2.5	98.01
2.6	101.31
2.7	104.61
2.8	107.91
2.9	111.21
3.0	114.51
3.1	117.81
3.2	121.11
3.3	124.41
3.4	127.71
3.5	131.01
3.6	134.31
3.7	137.61
3.8	140.91
3.9	144.21
4.0	147.51
4.1	150.81
4.2	154.11
4.3	157.41
4.4	160.71
4.5	164.01
4.6	167.31
4.7	170.61
4.8	173.91
4.9	177.21
5.0	180.51
5.1	183.81
5.2	187.11
5.3	190.41
5.4	193.71
5.5	197.01
5.6	200.31
5.7	203.61
5.8	206.91
5.9	210.21
6.0	213.51
6.1	216.81
6.2	220.11
6.3	223.41
6.4	226.71
6.5	230.01
6.6	233.31
6.7	236.61
6.8	239.91
6.9	243.21
7.0	246.51
7.1	249.81
7.2	253.11
7.3	256.41
7.4	259.71
7.5	263.01
7.6	266.31
7.7	269.61
7.8	272.91
7.9	276.21
8.0	279.51
8.1	282.81
8.2	286.11
8.3	289.41
8.4	292.71
8.5	296.01
8.6	299.31
8.7	302.61
8.8	305.91
8.9	309.21
9.0	312.51
9.1	315.81
9.2	319.11
9.3	322.41
9.4	325.71
9.5	329.01
9.6	332.31
9.7	335.61
9.8	338.91
9.9	342.21
10.0	345.51
10.1	348.81
10.2	352.11
10.3	355.41
10.4	358.71
10.5	362.01
10.6	365.31
10.7	368.61
10.8	371.91
10.9	375.21
11.0	378.51
11.1	381.81
11.2	385.11
11.3	388.41
11.4	391.71
11.5	395.01
11.6	398.31
11.7	401.61
11.8	404.91
11.9	408.21
12.0	411.51
12.1	414.81
12.2	418.11
12.3	421.41
12.4	424.71
12.5	428.01
12.6	431.31
12.7	434.61
12.8	437.91
12.9	441.21
13.0	444.51
13.1	447.81
13.2	451.11
13.3	454.41
13.4	457.71
13.5	461.01
13.6	464.31
13.7	467.61
13.8	470.91
13.9	474.21
14.0	477.51
14.1	480.81
14.2	484.11
14.3	487.41
14.4	490.71
14.5	494.01
14.6	497.31
14.7	500.61
14.8	503.91
14.9	507.21
15.0	510.51
15.1	513.81
15.2	517.11
15.3	520.41
15.4	523.71
15.5	527.01
15.6	530.31
15.7	533.61
15.8	536.91
15.9	540.21
16.0	543.51
16.1	546.81
16.2	550.11
16.3	553.41
16.4	556.71
16.5	560.01
16.6	563.31
16.7	566.61
16.8	569.91
16.9	573.21
17.0	576.51
17.1	579.81
17.2	583.11
17.3	586.41
17.4	589.71
17.5	593.01
17.6	596.31
17.7	599.61
17.8	602.91
17.9	606.21
18.0	609.51
18.1	612.81
18.2	616.11
18.3	619.41
18.4	622.71
18.5	626.01
18.6	629.31
18.7	632.61
18.8	635.91
18.9	639.21
19.0	642.51
19.1	645.81
19.2	649.11
19.3	652.41
19.4	655.71
19.5	659.01
19.6	662.31
19.7	665.61
19.8	668.91
19.9	672.21
20.0	675.51
20.1	678.81
20.2	682.11
20.3	685.41
20.4	688.71
20.5	692.01
20.6	695.31
20.7	698.61
20.8	701.91
20.9	705.21
21.0	708.51
21.1	711.81
21.2	715.11
21.3	718.41
21.4	721.71
21.5	725.01
21.6	728.31
21.7	731.61
21.8	734.91
21.9	738.21
22.0	741.51
22.1	744.81
22.2	748.11
22.3	751.41
22.4	754.71
22.5	758.01
22.6	761.31
22.7	764.61
22.8	767.91
22.9	771.21
23.0	774.51
23.1	777.81
23.2	781.11
23.3	784.41
23.4	787.71
23.5	791.01
23.6	794.31
23.7	797.61
23.8	800.91
23.9	804.21
24.0	807.51
24.1	810.81
24.2	814.11
24.3	817.41
24.4	820.71
24.5	824.01
24.6	827.31
24.7	830.61
24.8	833.91
24.9	837.21
25.0	840.51
25.1	843.81
25.2	847.11
25.3	850.41
25.4	853.71
25.5	857.01
25.6	860.31
25.7	863.61
25.8	866.91
25.9	870.21
26.0	873.51
26.1	876.81
26.2	880.11
26.3	883.41
26.4	886.71
26.5	890.01
26.6	893.31
26.7	896.61
26.8	899.91
26.9	903.21
27.0	906.51
27.1	909.81
27.2	913.11
27.3	916.41
27.4	919.71
27.5	923.01
27.6	926.31
27.7	929.61
27.8	932.91
27.9	936.21
28.0	939.51
28.1	942.81
28.2	946.11
28.3	949.41
28.4	952.71
28.5	956.01
28.6	959.31
28.7	962.61
28.8	965.91
28.9	969.21
29.0	972.51
29.1	975.81
29.2	979.11
29.3	982.41
29.4	985.71
29.5	989.01
29.6	992.31
29.7	995.61
29.8	998.91
29.9	1002.21
30.0	1005.51
30.1	1008.81
30.2	1012.11
30.3	1015.41
30.4	1018.71
30.5	1022.01
30.6	1025.31
30.7	1028.61
30.8	1031.91
30.9	1035.21
31.0	1038.51
31.1	1041.81
31.2	1045.11
31.3	1048.41
31.4	1051.71
31.5	1055.01
31.6	1058.31
31.7	1061.61
31.8	1064.91
31.9	1068.21
32.0	1071.51
32.1	1074.81
32.2	1078.11
32.3	1081.41
32.4	1084.71
32.5	1088.01
32.6	1091.31
32.7	1094.61
32.8	1097.91
32.9	1101.21
33.0	1104.51
33.1	1107.81
33.2	1111.11
33.3	1114.41
33.4	1117.71
33.5	1121.01
33.6	1124.31
33.7	1127.61
33.8	1130.91
33.9	1134.21
34.0	1137.51
34.1	1140.81
34.2	1144.11
34.3	1147.41
34.4	1150.71
34.5	1154.01
34.6	1157.31
34.7	1160.61
34.8	1163.91
34.9	1167.21
35.0	1170.51
35.1	1173.81
35.2	1177.11
35.3	1180.41
35.4	1183.71
35.5	1187.01
35.6	1190.31
35.7	1193.61
35.8	1196.91
35.9	1200.21
36.0	1203.51
36.1	1206.81
36.2	1210.11
36.3	1213.41
36.4	1216.71
36.5	1220.01
36.6	1223.31
36.7	1226.61
36.8	1229.91
36.9	1233.21
37.0	1236.51
37.1	1239.81
37.2	1243.11
37.3	1246.41
37.4	1249.71
37.5	1253.01
37.6	1256.31
37.7	1259.61
37.8	1262.91
37.9	1266.21
38.0	1269.51
38.1	1272.81
38.2	1276.11
38.3	1279.41
38.4	1282.71
38.5	1286.01
38.6	1289.31
38.7	1292.61
38.8	1295.91
38.9	1299.21
39.0	1302.51
39.1	1305.81
39.2	1309.11
39.3	1312.41
39.4	1315.71
39.5	1319.01
39.6	1322.31
39.7	1325.61
39.8	1328.91
39.9	1332.21
40.0	1335.51

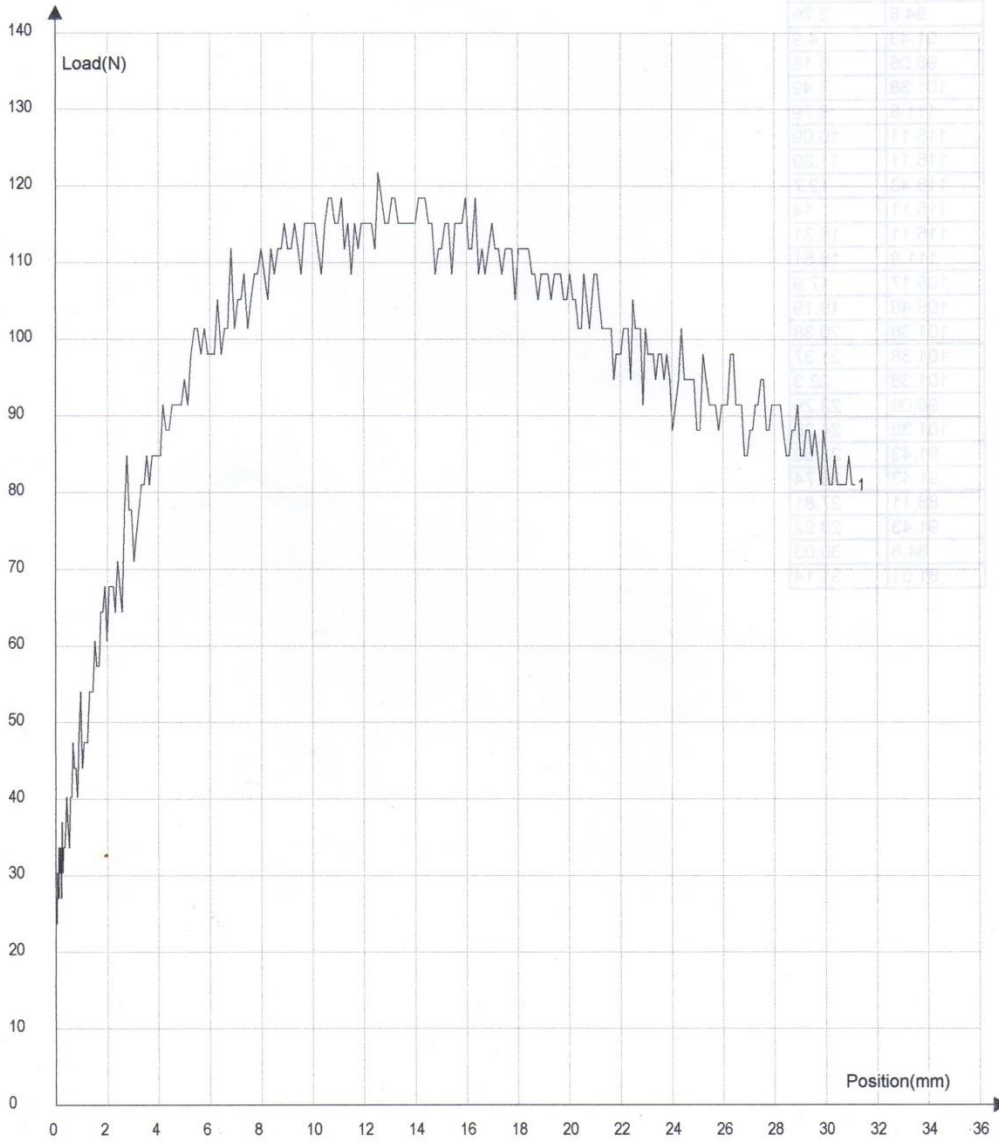


Gaya N	Defleksi mm
13.26	0.01
16.58	0.16
27	0.5
30.32	1.02
40.27	1.66
57.32	2.38
64.43	3.25
81.01	4.29
77.69	5.35
84.8	6.42
84.8	7.49
91.43	8.56
91.43	9.62
101.38	10.68
98.06	11.69
101.38	12.53
98.06	13.39
101.38	14.28
94.74	15.17
91.43	16.05
98.06	16.94
94.74	17.83
94.74	18.72
98.06	19.61
94.74	20.5
94.74	21.39
88.11	22.27
84.8	23.16
81.01	24.05
77.69	24.94
74.37	25.83
74.37	26.72
74.37	27.61
71.06	28.5
67.74	29.39
60.64	30.28
67.74	31.16
64.43	32.05
57.32	32.94

Metallic materials-Bend Test Testing Report

Name	diameter of specimen(d)	maximum force(Fm)
ID	mm	kN
NO.1	10.00	0.12

mm	N
0.0	33
0.1	39.85
0.2	46.71
0.3	53.57
0.4	60.43
0.5	67.29
0.6	74.15
0.7	81.01
0.8	87.87
0.9	94.73
1.0	101.59
1.1	108.45
1.2	115.31
1.3	122.17
1.4	129.03
1.5	135.89
1.6	142.75
1.7	149.61
1.8	156.47
1.9	163.33
2.0	170.19
2.1	177.05
2.2	183.91
2.3	190.77
2.4	197.63
2.5	204.49
2.6	211.35
2.7	218.21
2.8	225.07
2.9	231.93
3.0	238.79
3.1	245.65
3.2	252.51
3.3	259.37
3.4	266.23
3.5	273.09
3.6	279.95
3.7	286.81
3.8	293.67
3.9	300.53
4.0	307.39
4.1	314.25
4.2	321.11
4.3	327.97
4.4	334.83
4.5	341.69
4.6	348.55
4.7	355.41
4.8	362.27
4.9	369.13
5.0	375.99
5.1	382.85
5.2	389.71
5.3	396.57
5.4	403.43
5.5	410.29
5.6	417.15
5.7	424.01
5.8	430.87
5.9	437.73
6.0	444.59
6.1	451.45
6.2	458.31
6.3	465.17
6.4	472.03
6.5	478.89
6.6	485.75
6.7	492.61
6.8	499.47
6.9	506.33
7.0	513.19
7.1	520.05
7.2	526.91
7.3	533.77
7.4	540.63
7.5	547.49
7.6	554.35
7.7	561.21
7.8	568.07
7.9	574.93
8.0	581.79
8.1	588.65
8.2	595.51
8.3	602.37
8.4	609.23
8.5	616.09
8.6	622.95
8.7	629.81
8.8	636.67
8.9	643.53
9.0	650.39
9.1	657.25
9.2	664.11
9.3	670.97
9.4	677.83
9.5	684.69
9.6	691.55
9.7	698.41
9.8	705.27
9.9	712.13
10.0	718.99
10.1	725.85
10.2	732.71
10.3	739.57
10.4	746.43
10.5	753.29
10.6	760.15
10.7	767.01
10.8	773.87
10.9	780.73
11.0	787.59
11.1	794.45
11.2	801.31
11.3	808.17
11.4	815.03
11.5	821.89
11.6	828.75
11.7	835.61
11.8	842.47
11.9	849.33
12.0	856.19
12.1	863.05
12.2	869.91
12.3	876.77
12.4	883.63
12.5	890.49
12.6	897.35
12.7	904.21
12.8	911.07
12.9	917.93
13.0	924.79
13.1	931.65
13.2	938.51
13.3	945.37
13.4	952.23
13.5	959.09
13.6	965.95
13.7	972.81
13.8	979.67
13.9	986.53
14.0	993.39
14.1	1000.25
14.2	1007.11
14.3	1013.97
14.4	1020.83
14.5	1027.69
14.6	1034.55
14.7	1041.41
14.8	1048.27
14.9	1055.13
15.0	1061.99
15.1	1068.85
15.2	1075.71
15.3	1082.57
15.4	1089.43
15.5	1096.29
15.6	1103.15
15.7	1109.99
15.8	1116.85
15.9	1123.71
16.0	1130.57
16.1	1137.43
16.2	1144.29
16.3	1151.15
16.4	1158.01
16.5	1164.87
16.6	1171.73
16.7	1178.59
16.8	1185.45
16.9	1192.31
17.0	1199.17
17.1	1206.03
17.2	1212.89
17.3	1219.75
17.4	1226.61
17.5	1233.47
17.6	1240.33
17.7	1247.19
17.8	1254.05
17.9	1260.91
18.0	1267.77
18.1	1274.63
18.2	1281.49
18.3	1288.35
18.4	1295.21
18.5	1302.07
18.6	1308.93
18.7	1315.79
18.8	1322.65
18.9	1329.51
19.0	1336.37
19.1	1343.23
19.2	1350.09
19.3	1356.95
19.4	1363.81
19.5	1370.67
19.6	1377.53
19.7	1384.39
19.8	1391.25
19.9	1398.11
20.0	1404.97
20.1	1411.83
20.2	1418.69
20.3	1425.55
20.4	1432.41
20.5	1439.27
20.6	1446.13
20.7	1452.99
20.8	1459.85
20.9	1466.71
21.0	1473.57
21.1	1480.43
21.2	1487.29
21.3	1494.15
21.4	1501.01
21.5	1507.87
21.6	1514.73
21.7	1521.59
21.8	1528.45
21.9	1535.31
22.0	1542.17
22.1	1549.03
22.2	1555.89
22.3	1562.75
22.4	1569.61
22.5	1576.47
22.6	1583.33
22.7	1590.19
22.8	1597.05
22.9	1603.91
23.0	1610.77
23.1	1617.63
23.2	1624.49
23.3	1631.35
23.4	1638.21
23.5	1645.07
23.6	1651.93
23.7	1658.79
23.8	1665.65
23.9	1672.51
24.0	1679.37
24.1	1686.23
24.2	1693.09
24.3	1700.00
24.4	1706.85
24.5	1713.70
24.6	1720.55
24.7	1727.40
24.8	1734.25
24.9	1741.10
25.0	1747.95
25.1	1754.80
25.2	1761.65
25.3	1768.50
25.4	1775.35
25.5	1782.20
25.6	1789.05
25.7	1795.90
25.8	1802.75
25.9	1809.60
26.0	1816.45
26.1	1823.30
26.2	1830.15
26.3	1837.00
26.4	1843.85
26.5	1850.70
26.6	1857.55
26.7	1864.40
26.8	1871.25
26.9	1878.10
27.0	1884.95
27.1	1891.80
27.2	1898.65
27.3	1905.50
27.4	1912.35
27.5	1919.20
27.6	1926.05
27.7	1932.90
27.8	1939.75
27.9	1946.60
28.0	1953.45
28.1	1960.30
28.2	1967.15
28.3	1974.00
28.4	1980.85
28.5	1987.70
28.6	1994.55
28.7	2001.40
28.8	2008.25
28.9	2015.10
29.0	2021.95
29.1	2028.80
29.2	2035.65
29.3	2042.50
29.4	2049.35
29.5	2056.20
29.6	2063.05
29.7	2069.90
29.8	2076.75
29.9	2083.60
30.0	2090.45
30.1	2097.30
30.2	2104.15
30.3	2111.00
30.4	2117.85
30.5	2124.70
30.6	2131.55
30.7	2138.40
30.8	2145.25
30.9	2152.10
31.0	2158.95
31.1	2165.80
31.2	2172.65
31.3	2179.50
31.4	2186.35
31.5	2193.20
31.6	2200.05
31.7	2206.90
31.8	2213.75
31.9	2220.60
32.0	2227.45
32.1	2234.30
32.2	2241.15
32.3	2248.00
32.4	2254.85
32.5	2261.70
32.6	2268.55
32.7	2275.40
32.8	2282.25
32.9	2289.10
33.0	2295.95
33.1	2302.80
33.2	2309.65
33.3	2316.50
33.4	2323.35
33.5	2330.20
33.6	2337.05
33.7	2343.90
33.8	2350.75
33.9	2357.60
34.0	2364.45
34.1	2371.30
34.2	2378.15
34.3	2385.00
34.4	2391.85
34.5	2398.70
34.6	2405.55
34.7	2412.40
34.8	2419.25
34.9	2426.10
35.0	2432.95
35.1	2439.80
35.2	2446.65
35.3	2453.50
35.4	2460.35
35.5	2467.20
35.6	2474.05
35.7	2480.90
35.8	2487.75
35.9	2494.60
36.0	2501.45



Tester:

Audit:

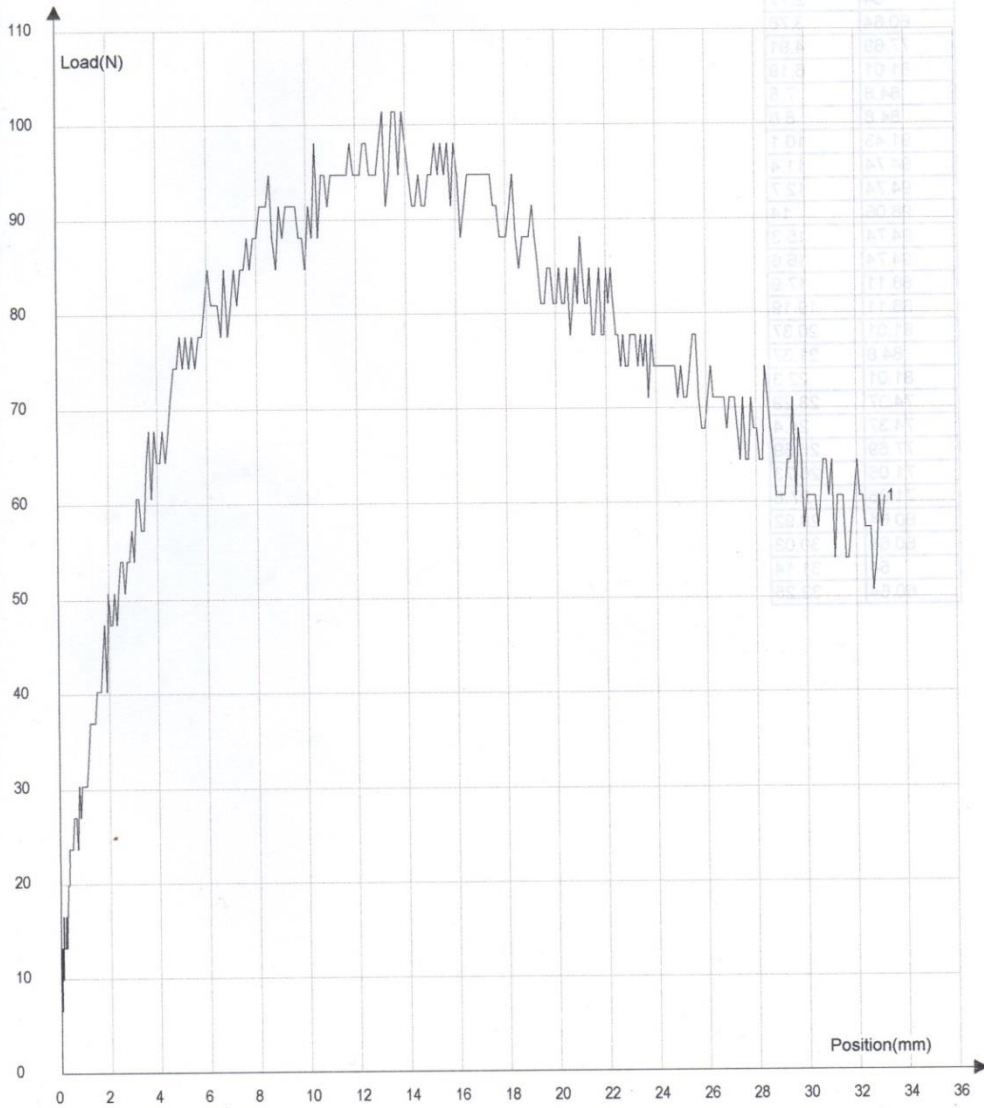
1/1

Gaya N	Defleksi mm
27	0.01
33.63	0.18
40.27	0.57
47.37	1.16
67.74	1.91
84.8	2.76
84.8	3.76
91.43	4.9
98.06	6.18
101.38	7.49
111.8	8.79
115.11	10.09
115.11	11.39
118.43	12.7
115.11	14
115.11	15.31
111.8	16.61
105.17	17.9
108.48	19.19
101.38	20.38
101.38	21.37
101.38	22.3
98.06	23.29
101.38	24.38
91.43	25.59
91.43	26.74
88.11	27.81
91.43	28.92
84.8	30.03
81.01	31.14

Metallic materials-Bend Test Testing Report

Name	diameter of specimen(d)	maximum force(Fm)
ID	mm	kN
NO.1	10.00	0.10

Displacement (mm)	Force (N)
0.00	0.00
0.10	12.50
0.20	25.00
0.30	37.50
0.40	50.00
0.50	62.50
0.60	75.00
0.70	87.50
0.80	100.00
0.90	112.50
1.00	125.00
1.10	137.50
1.20	150.00
1.30	162.50
1.40	175.00
1.50	187.50
1.60	200.00
1.70	212.50
1.80	225.00
1.90	237.50
2.00	250.00
2.10	262.50
2.20	275.00
2.30	287.50
2.40	300.00
2.50	312.50
2.60	325.00
2.70	337.50
2.80	350.00
2.90	362.50
3.00	375.00
3.10	387.50
3.20	400.00
3.30	412.50
3.40	425.00
3.50	437.50
3.60	450.00
3.70	462.50
3.80	475.00
3.90	487.50
4.00	500.00
4.10	512.50
4.20	525.00
4.30	537.50
4.40	550.00
4.50	562.50
4.60	575.00
4.70	587.50
4.80	600.00
4.90	612.50
5.00	625.00
5.10	637.50
5.20	650.00
5.30	662.50
5.40	675.00
5.50	687.50
5.60	700.00
5.70	712.50
5.80	725.00
5.90	737.50
6.00	750.00
6.10	762.50
6.20	775.00
6.30	787.50
6.40	800.00
6.50	812.50
6.60	825.00
6.70	837.50
6.80	850.00
6.90	862.50
7.00	875.00
7.10	887.50
7.20	900.00
7.30	912.50
7.40	925.00
7.50	937.50
7.60	950.00
7.70	962.50
7.80	975.00
7.90	987.50
8.00	1000.00
8.10	987.50
8.20	975.00
8.30	962.50
8.40	950.00
8.50	937.50
8.60	925.00
8.70	912.50
8.80	900.00
8.90	887.50
9.00	875.00
9.10	862.50
9.20	850.00
9.30	837.50
9.40	825.00
9.50	812.50
9.60	800.00
9.70	787.50
9.80	775.00
9.90	762.50
10.00	750.00
10.10	737.50
10.20	725.00
10.30	712.50
10.40	700.00
10.50	687.50
10.60	675.00
10.70	662.50
10.80	650.00
10.90	637.50
11.00	625.00
11.10	612.50
11.20	600.00
11.30	587.50
11.40	575.00
11.50	562.50
11.60	550.00
11.70	537.50
11.80	525.00
11.90	512.50
12.00	500.00
12.10	487.50
12.20	475.00
12.30	462.50
12.40	450.00
12.50	437.50
12.60	425.00
12.70	412.50
12.80	400.00
12.90	387.50
13.00	375.00
13.10	362.50
13.20	350.00
13.30	337.50
13.40	325.00
13.50	312.50
13.60	300.00
13.70	287.50
13.80	275.00
13.90	262.50
14.00	250.00
14.10	237.50
14.20	225.00
14.30	212.50
14.40	200.00
14.50	187.50
14.60	175.00
14.70	162.50
14.80	150.00
14.90	137.50
15.00	125.00
15.10	112.50
15.20	100.00
15.30	87.50
15.40	75.00
15.50	62.50
15.60	50.00
15.70	37.50
15.80	25.00
15.90	12.50
16.00	0.00



Tester:

Audit:

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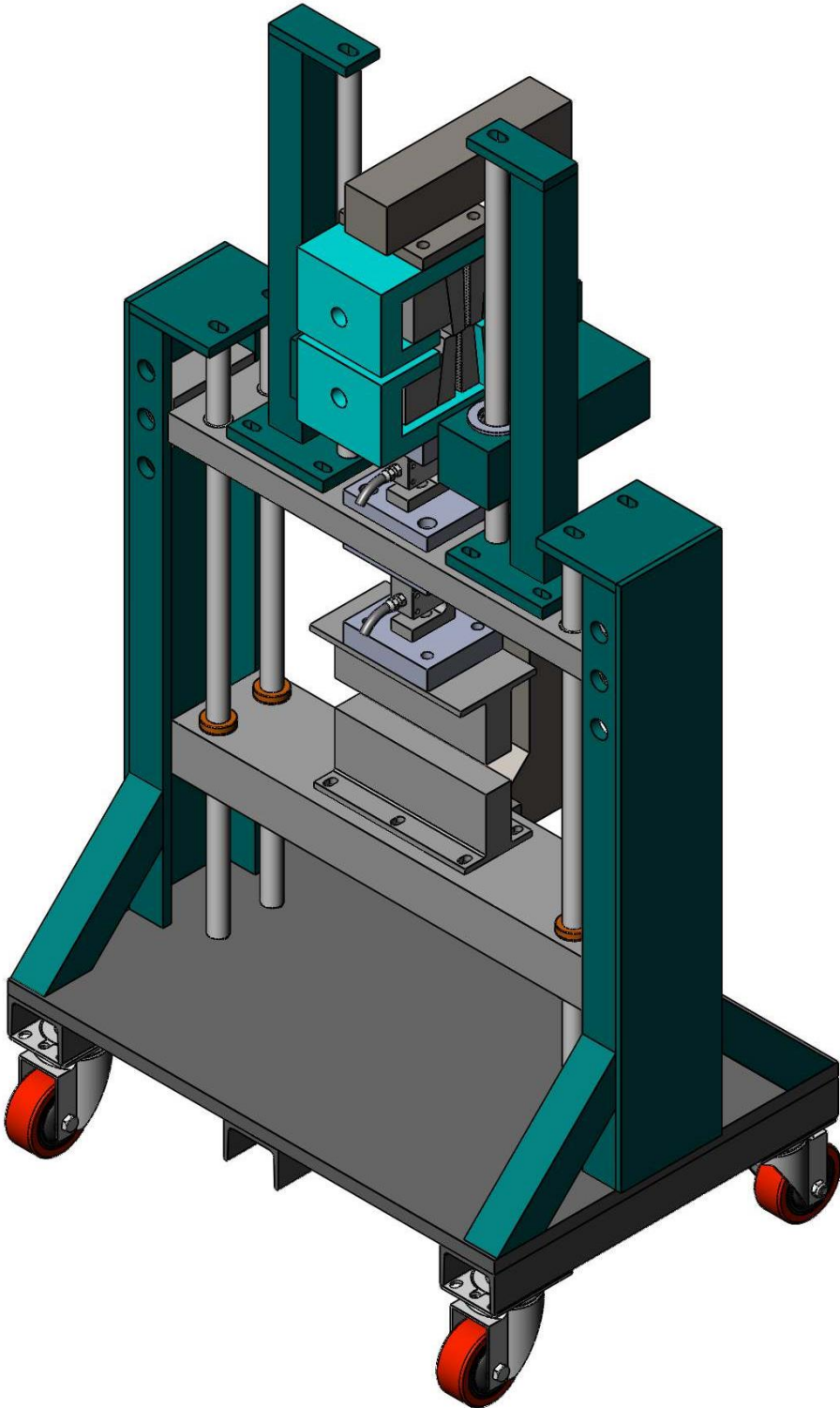
Gaya N	Defleksi mm
6.63	0.01
13.26	0.17
27	0.56
33.63	1.16
40.27	1.91
54	2.77
60.64	3.76
77.69	4.91
81.01	6.19
84.8	7.5
84.8	8.8
91.43	10.1
94.74	11.4
94.74	12.7
98.06	14
94.74	15.3
94.74	16.6
88.11	17.9
88.11	19.19
81.01	20.37
84.8	21.37
81.01	22.3
74.37	23.29
74.37	24.4
77.69	25.59
71.06	26.73
71.06	27.8
60.64	28.92
60.64	30.03
54	31.14
60.64	32.25

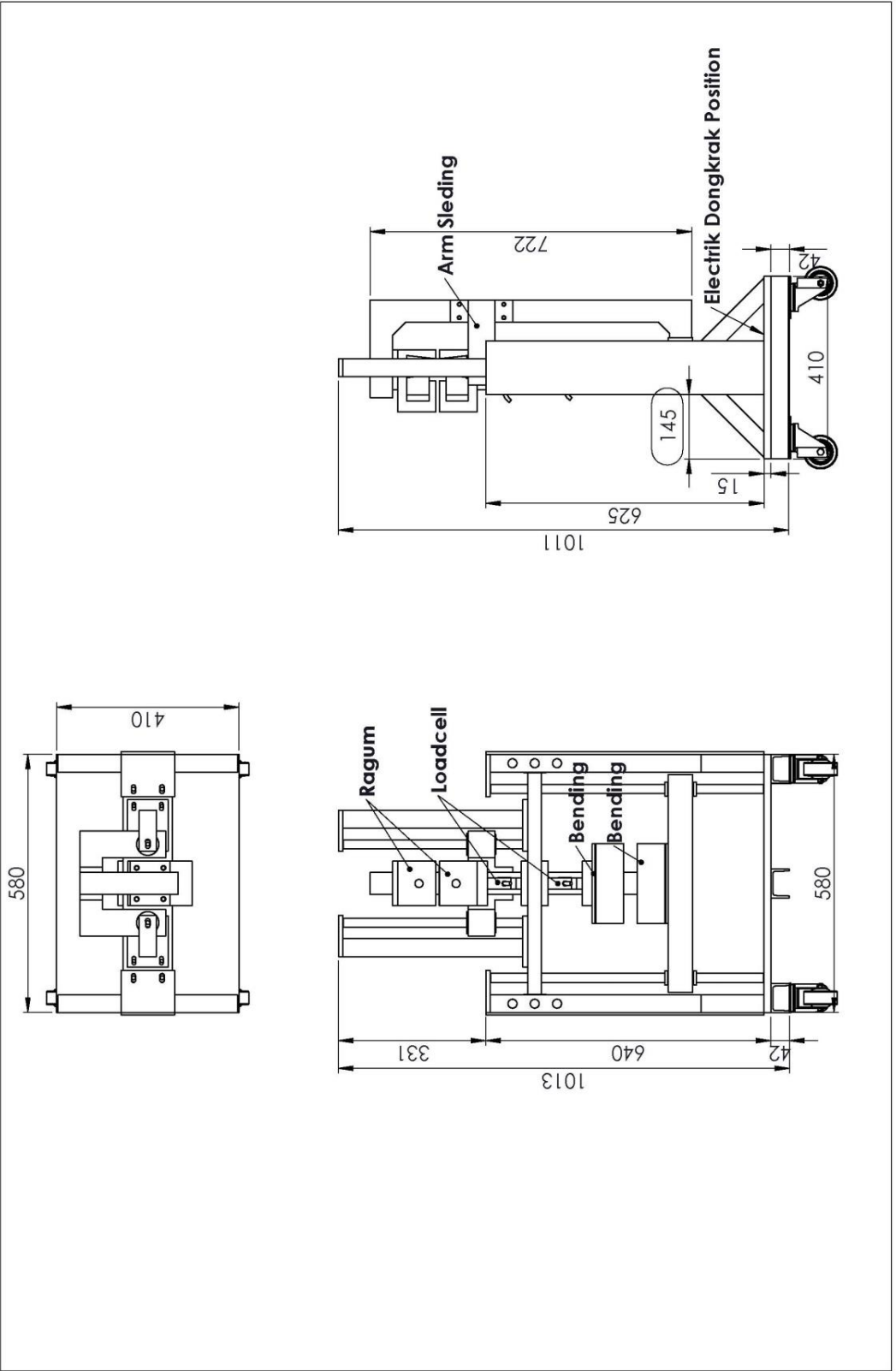
Metallic materials-Bend Test Testing Report

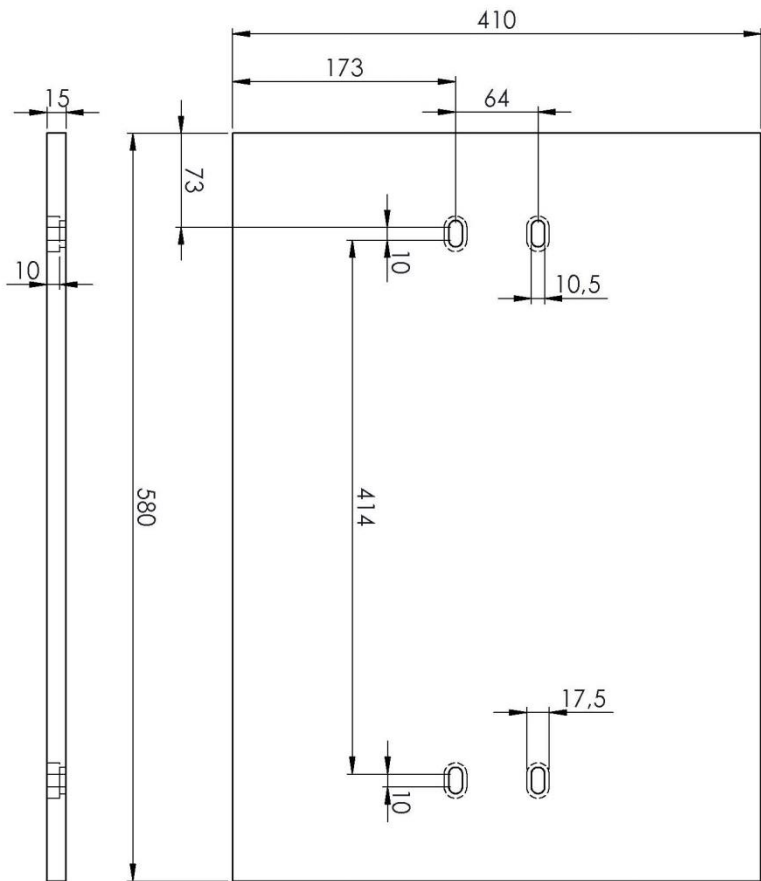
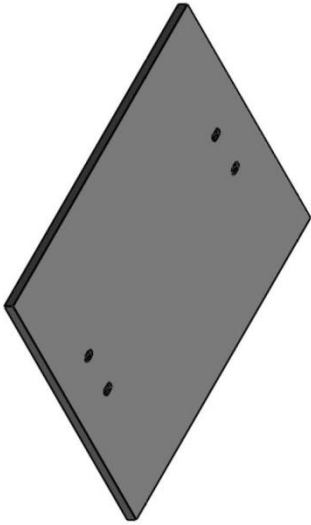
Name	diameter of specimen(d)	maximum force(Fm)
ID	mm	kN
NO.1	10.00	0.13


mm	N
0	60.55
11.0	69.55
22.0	73.04
33.0	76.53
44.0	80.02
55.0	83.51
66.0	87.00
77.0	90.49
88.0	93.98
99.0	97.47
110.0	100.96
121.0	104.45
132.0	107.94
143.0	111.43
154.0	114.92
165.0	118.41
176.0	121.90
187.0	125.39
198.0	128.88
209.0	132.37
220.0	135.86
231.0	139.35
242.0	142.84
253.0	146.33
264.0	149.82
275.0	153.31
286.0	156.80
297.0	160.29
308.0	163.78
319.0	167.27
330.0	170.76
341.0	174.25
352.0	177.74
363.0	181.23
374.0	184.72
385.0	188.21
396.0	191.70
407.0	195.19
418.0	198.68
429.0	202.17
440.0	205.66
451.0	209.15
462.0	212.64
473.0	216.13
484.0	219.62
495.0	223.11
506.0	226.60
517.0	230.09
528.0	233.58
539.0	237.07
550.0	240.56
561.0	244.05
572.0	247.54
583.0	251.03
594.0	254.52
605.0	258.01
616.0	261.50
627.0	264.99
638.0	268.48
649.0	271.97
660.0	275.46
671.0	278.95
682.0	282.44
693.0	285.93
704.0	289.42
715.0	292.91
726.0	296.40
737.0	299.89
748.0	303.38
759.0	306.87
770.0	310.36
781.0	313.85
792.0	317.34
803.0	320.83
814.0	324.32
825.0	327.81
836.0	331.30
847.0	334.79
858.0	338.28
869.0	341.77
880.0	345.26
891.0	348.75
902.0	352.24
913.0	355.73
924.0	359.22
935.0	362.71
946.0	366.20
957.0	369.69
968.0	373.18
979.0	376.67
990.0	380.16
1001.0	383.65
1012.0	387.14
1023.0	390.63
1034.0	394.12
1045.0	397.61
1056.0	401.10
1067.0	404.59
1078.0	408.08
1089.0	411.57
1100.0	415.06
1111.0	418.55
1122.0	422.04
1133.0	425.53
1144.0	429.02
1155.0	432.51
1166.0	436.00
1177.0	439.49
1188.0	442.98
1199.0	446.47
1210.0	449.96
1221.0	453.45
1232.0	456.94
1243.0	460.43
1254.0	463.92
1265.0	467.41
1276.0	470.90
1287.0	474.39
1298.0	477.88
1309.0	481.37
1320.0	484.86
1331.0	488.35
1342.0	491.84
1353.0	495.33
1364.0	498.82
1375.0	502.31
1386.0	505.80
1397.0	509.29
1408.0	512.78
1419.0	516.27
1430.0	519.76
1441.0	523.25
1452.0	526.74
1463.0	530.23
1474.0	533.72
1485.0	537.21
1496.0	540.70
1507.0	544.19
1518.0	547.68
1529.0	551.17
1540.0	554.66
1551.0	558.15
1562.0	561.64
1573.0	565.13
1584.0	568.62
1595.0	572.11
1606.0	575.60
1617.0	579.09
1628.0	582.58
1639.0	586.07
1650.0	589.56
1661.0	593.05
1672.0	596.54
1683.0	600.03
1694.0	603.52
1705.0	607.01
1716.0	610.50
1727.0	613.99
1738.0	617.48
1749.0	620.97
1760.0	624.46
1771.0	627.95
1782.0	631.44
1793.0	634.93
1804.0	638.42
1815.0	641.91
1826.0	645.40
1837.0	648.89
1848.0	652.38
1859.0	655.87
1870.0	659.36
1881.0	662.85
1892.0	666.34
1903.0	669.83
1914.0	673.32
1925.0	676.81
1936.0	680.30
1947.0	683.79
1958.0	687.28
1969.0	690.77
1980.0	694.26
1991.0	697.75
2002.0	701.24
2013.0	704.73
2024.0	708.22
2035.0	711.71
2046.0	715.20
2057.0	718.69
2068.0	722.18
2079.0	725.67
2090.0	729.16
2101.0	732.65
2112.0	736.14
2123.0	739.63
2134.0	743.12
2145.0	746.61
2156.0	750.10
2167.0	753.59
2178.0	757.08
2189.0	760.57
2200.0	764.06
2211.0	767.55
2222.0	771.04
2233.0	774.53
2244.0	778.02
2255.0	781.51
2266.0	785.00
2277.0	788.49
2288.0	791.98
2299.0	795.47
2310.0	798.96
2321.0	802.45
2332.0	805.94
2343.0	809.43
2354.0	812.92
2365.0	816.41
2376.0	819.90
2387.0	823.39
2398.0	826.88
2409.0	830.37
2420.0	833.86
2431.0	837.35
2442.0	840.84
2453.0	844.33
2464.0	847.82
2475.0	851.31
2486.0	854.80
2497.0	858.29
2508.0	861.78
2519.0	865.27
2530.0	868.76
2541.0	872.25
2552.0	875.74
2563.0	879.23
2574.0	882.72
2585.0	886.21
2596.0	889.70
2607.0	893.19
2618.0	896.68
2629.0	900.17
2640.0	903.66
2651.0	907.15
2662.0	910.64
2673.0	914.13
2684.0	917.62
2695.0	921.11
2706.0	924.60
2717.0	928.09
2728.0	931.58
2739.0	935.07
2750.0	938.56
2761.0	942.05
2772.0	945.54
2783.0	949.03
2794.0	952.52
2805.0	956.01
2816.0	959.50
2827.0	962.99
2838.0	966.48
2849.0	969.97
2860.0	973.46
2871.0	976.95
2882.0	980.44
2893.0	983.93
2904.0	987.42
2915.0	990.91
2926.0	994.40
2937.0	997.89
2948.0	1001.38
2959.0	1004.87
2970.0	1008.36
2981.0	1011.85
2992.0	1015.34
3003.0	1018.83
3014.0	1022.32
3025.0	1025.81
3036.0	1029.30
3047.0	1032.79
3058.0	1036.28
3069.0	1039.77
3080.0	1043.26
3091.0	1046.75
3102.0	1050.24
3113.0	1053.73
3124.0	1057.22
3135.0	1060.71
3146.0	1064.20
3157.0	1067.69
3168.0	1071.18
3179.0	1074.67
3190.0	1078.16
3201.0	1081.65
3212.0	1085.14
3223.0	1088.63
3234.0	1092.12
3245.0	1095.61
3256.0	1099.10
3267.0	1102.59
3278.0	1106.08
3289.0	1109.57
3300.0	1113.06
3311.0	1116.55
3322.0	1120.04
3333.0	1123.53
3344.0	1127.02
3355.0	1130.51
3366.0	1134.00
3377.0	1137.49
3388.0	1140.98
3399.0	1144.47
3410.0	1147.96
3421.0	1151.45
3432.0	1154.94
3443.0	1158.43
3454.0	1161.92
3465.0	1165.41
3476.0	1168.90
3487.0	1172.39
3498.0	1175.88
3509.0	1179.37
3520.0	1182.86
3531.0	1186.35
3542.0	1189.84
3553.0	1193.33
3564.0	1196.82
3575.0	1200.31
3586.0	1203.80
3597.0	1207.29
3608.0	1210.78
3619.0	1214.27
3630.0	1217.76
3641.0	1221.25
3652.0	1224.74
3663.0	1228.23
3674.0	1231.72
3685.0	1235.21
3696.0	1238.70
3707.0	1242.19
3718.0	1245.68
3729.0	1249.17
3740.0	1252.66
3751.0	1256.15
3762.0	1259.64
3773.0	1263.13
3784.0	1266.62
3795.0	1270.11
3806.0	1273.60
3817.0	1277.09
3828.0	1280.58
3839.0	1284.07
3850.0	1287.56
3861.0	1291.05
3872.0	1294.54
3883.0	1298.03
3894.0	1301.52
3905.0	1305.01
3916.0	1308.50
3927.0	1311.99
3938.0	1315.48
3949.0	1318.97
3960.0	1322.46
3971.0	1325.95
3982.0	1329.44
3993.0	1332.93
4004.0	1336.42
4015.0	1339.91
4026.0	1343.40
4037.0	1346.89
4048.0	1350.38
4059.0	1353.87
4070.0	1357.36
4081.0	1360.85
4092.0	1364.34
4103.0	1367.83
4114.0	1371.32
4125.0	1374.81
4136.0	1378.30
4147.0	1381.79
4158.0	1385.28
4169.0	1388.77
4180.0	1392.26
4191.0	1395.75
4202.0	1399.24
4213.0	1402.73
4224.0	1406.22
4235.0	1409.71
4246.0	1413.20
4257.0	1416.69
4268.0	1420.18
4279.0	1423.67
4290.0	1427.16
4301.0	1430.65
4312.0	1434.14
4323.0	1437.63
4334.0	1441.12
4345.0	1444.61
4356.0	1448.10
4367.0	1451.59
4378.0	1455.08
4389.0	1458.57
4400.0	1462.06
4411.0	1465.55
4422.0	1469.04
4433.0	1472.53
4444.0	1476.02
4455.0	1479.51
4466.0	1483.00
4477.0	1486.49
4488.0	1489.98
4499.0	1493.47
4510.0	1496.96
4521.0	1500.45
4532.0	1503.94
4543.0	1507.43
4554.0	1510.92
4565.0	1514.41
4576.0	1517.90
4587.0	1521.39
4598.0	1524.88
4609.0	1528.37
4620.0	1531.86
4631.0	1535.35
4642.0	1538.84
4653.0	1542.33
4664.0	1545.82
4675.0	1549.31
4686.0	1552.80
4697.0	1556.29
4708.0	1559.78
4719.0	1563.27
4730.0	1566.76
4741.0	1570.25
4752.0	1573.74
4763.0	1577.23
4774.0	1580.72
4785.0	1584.21
4796.0	1587.70
4807.0	1591.19
4818.0	1594.68
4829.0	1598.17
4840.0	1601.66
4851.0	1605.15
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4873.0	1612.13
4884.0	1615.62
4895.0	1619.11
4906.0</	

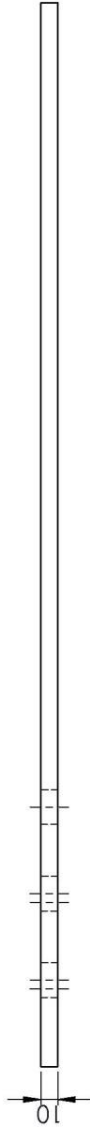
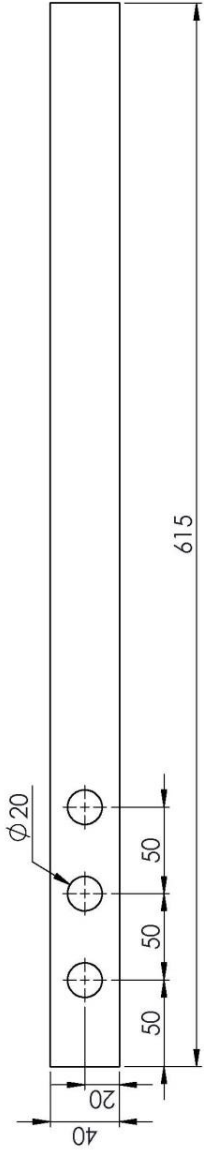
Gaya N	Defleksi mm
23.69	0
33.63	0.17
40.27	0.56
57.32	1.16
57.32	1.91
71.06	2.77
84.8	3.77
98.06	4.92
105.17	6.2
111.8	7.5
115.11	8.8
115.11	10.1
121.75	11.4
125.53	12.7
115.11	14
121.75	15.31
121.75	16.61
125.53	17.9
125.53	19.18
118.43	20.37
108.48	21.35
111.8	22.29
101.38	23.27
101.38	24.38
105.17	25.59
98.06	26.73
94.74	27.8
91.43	28.91
84.8	30.02







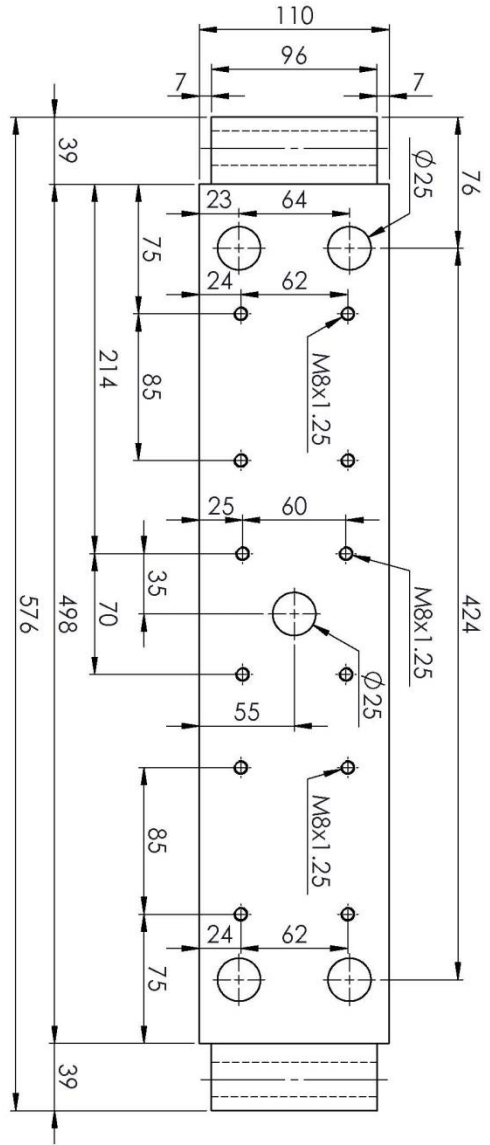
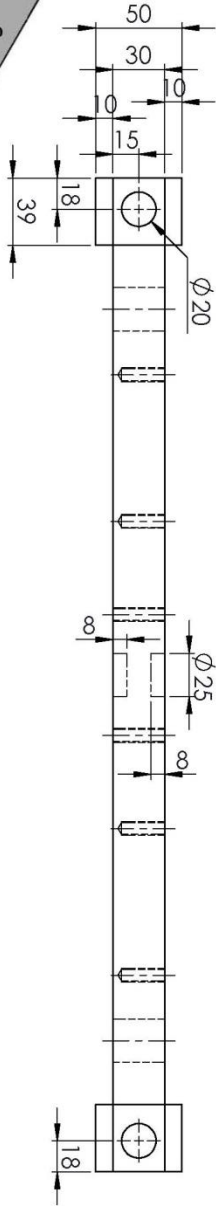
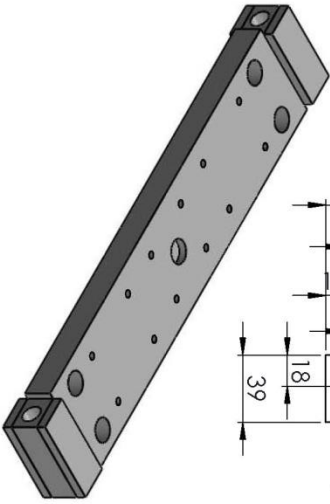







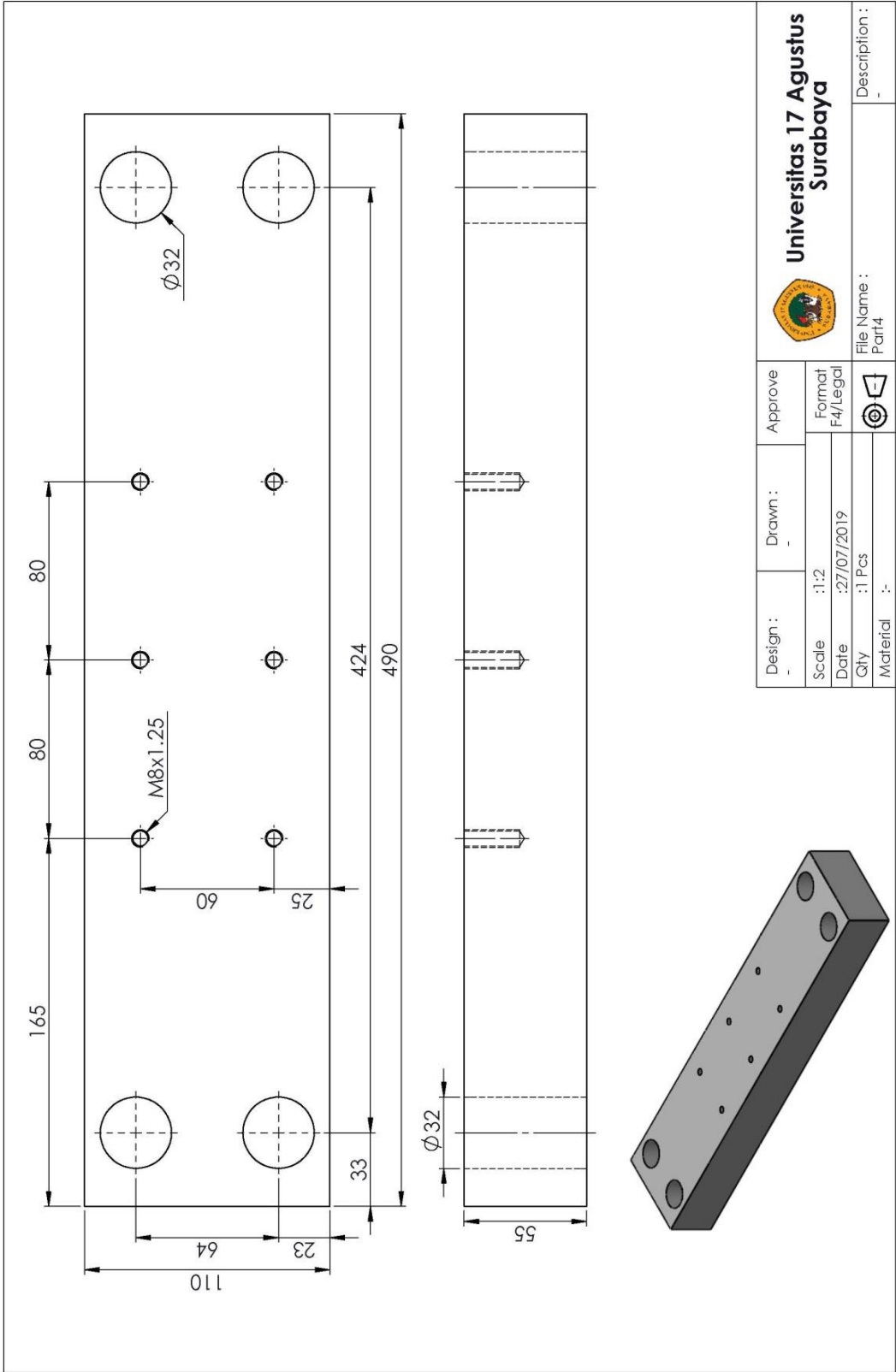
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Date : 27/07/2019	Qty : 1 Pcs			
Material : -	File Name : Part1			



Design : _	Drawn : _	Approve _	 Universitas 17 Agustus Surabaya File Name : Part2 Description : _
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Qty : 4 Pcs	Material : -		
			
			



Design :	Drawn :	Approve :	 Universitas 17 Agustus Surabaya	Description :
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Qty : 1 Pcs	Material :-	 	File Name :	Part3



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Surabaya

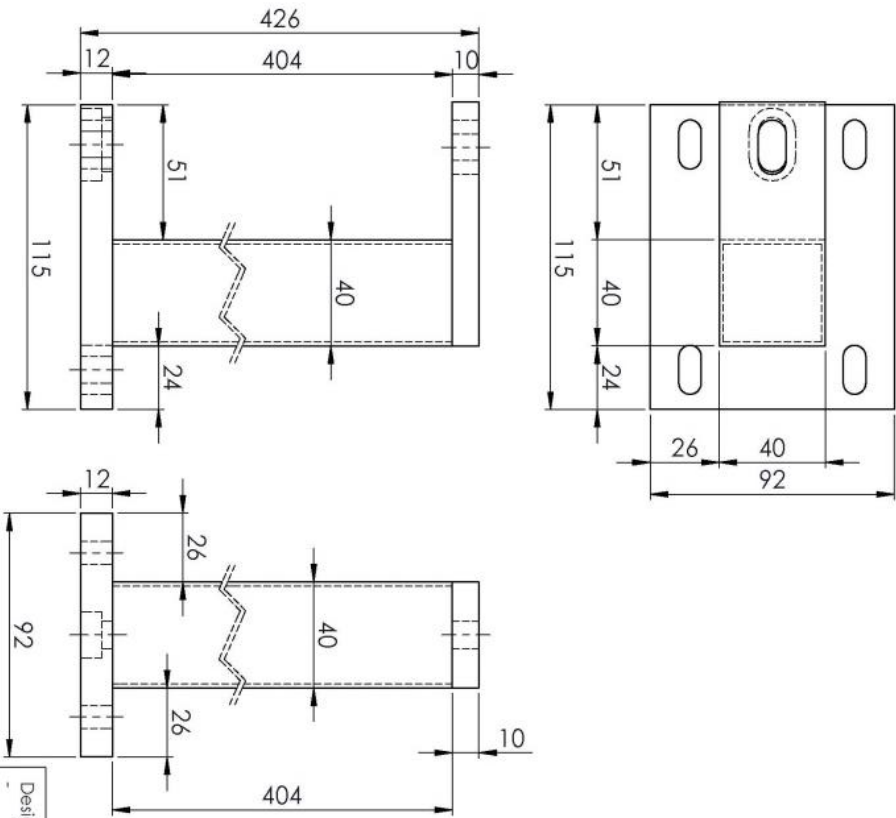
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Drawn :
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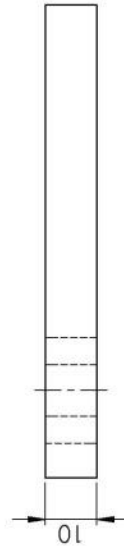
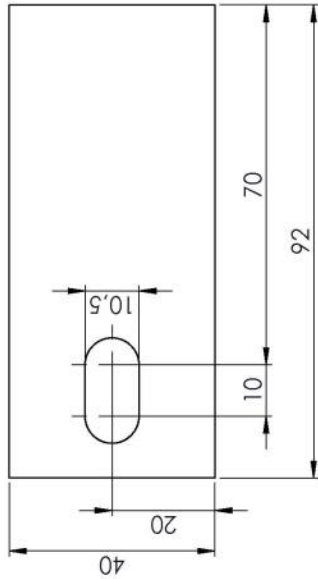
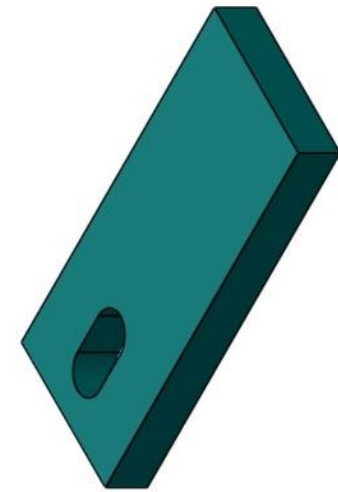
Approve
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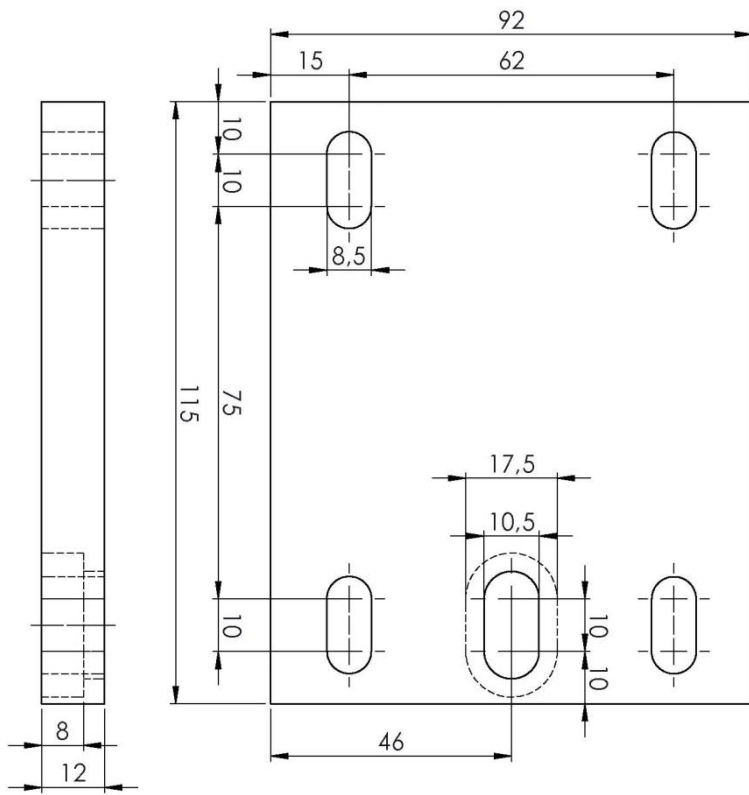
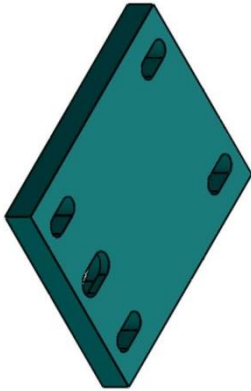
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Design :	Drawn :	Approve :	 Universitas 17 Agustus Surabaya Description : File Name : Part6
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Qty : 2 Pcs			
Material :-			

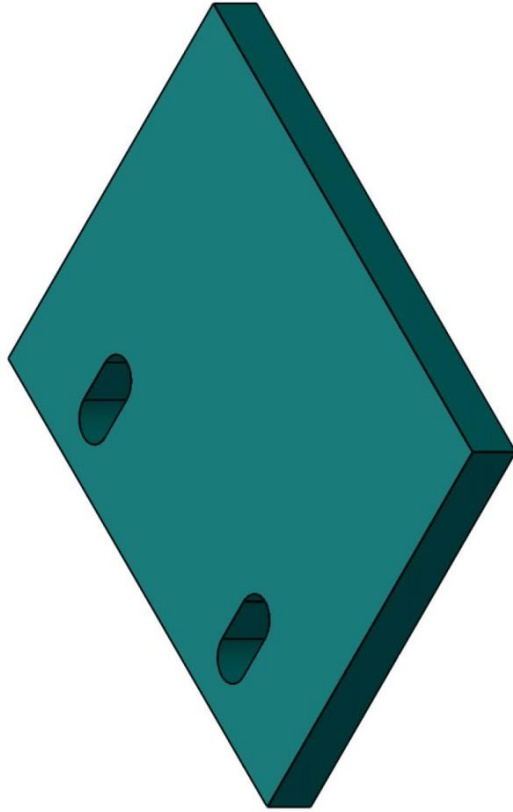
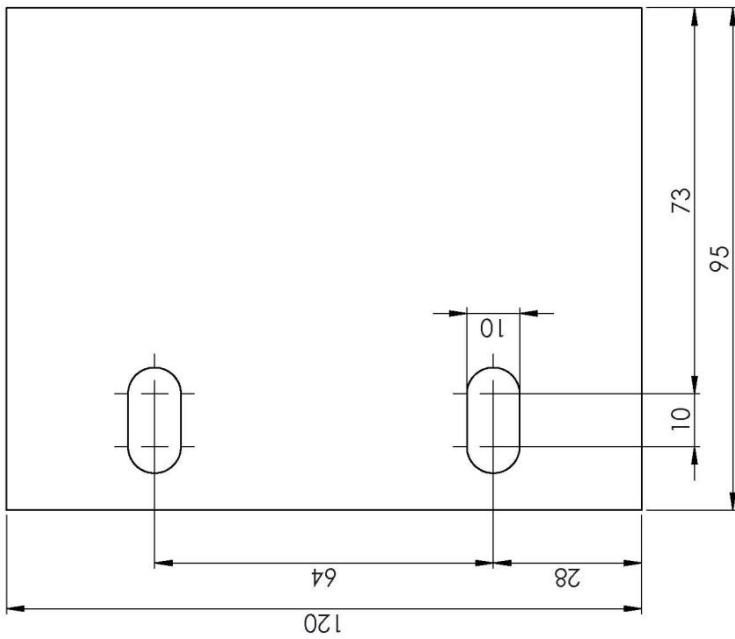





Design :	-	Drawn :	-	Approve	
Scale	: 1:1	Format	F4/Legcl		
Date	:29/07/2019	File Name :	Part7		
Qty	:2 Pcs				
Material	:-				

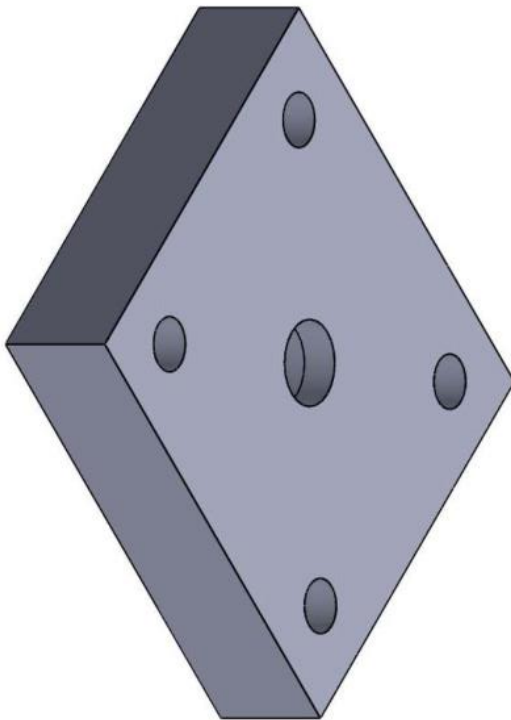
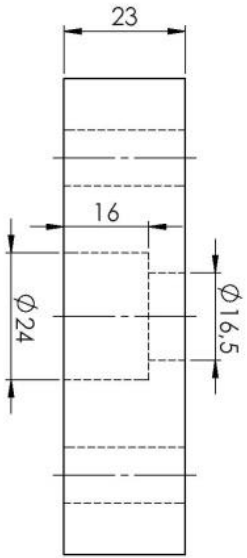
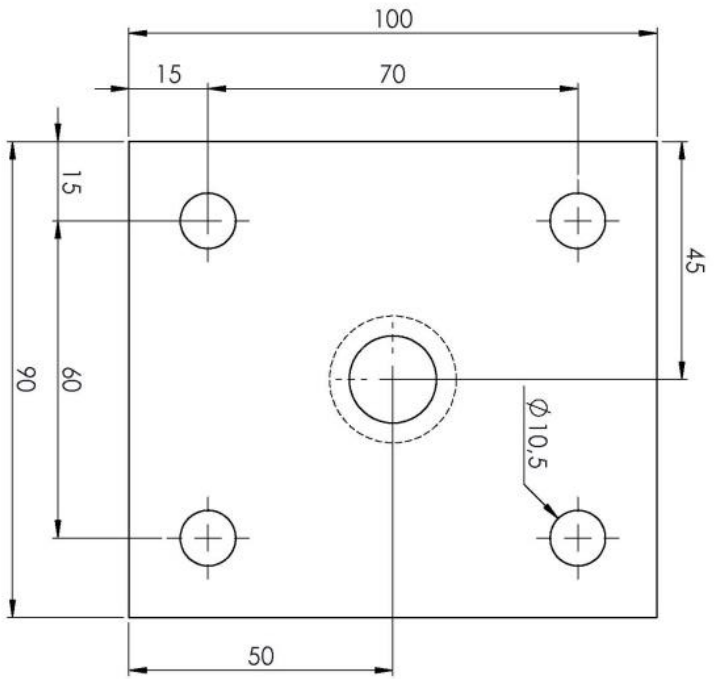


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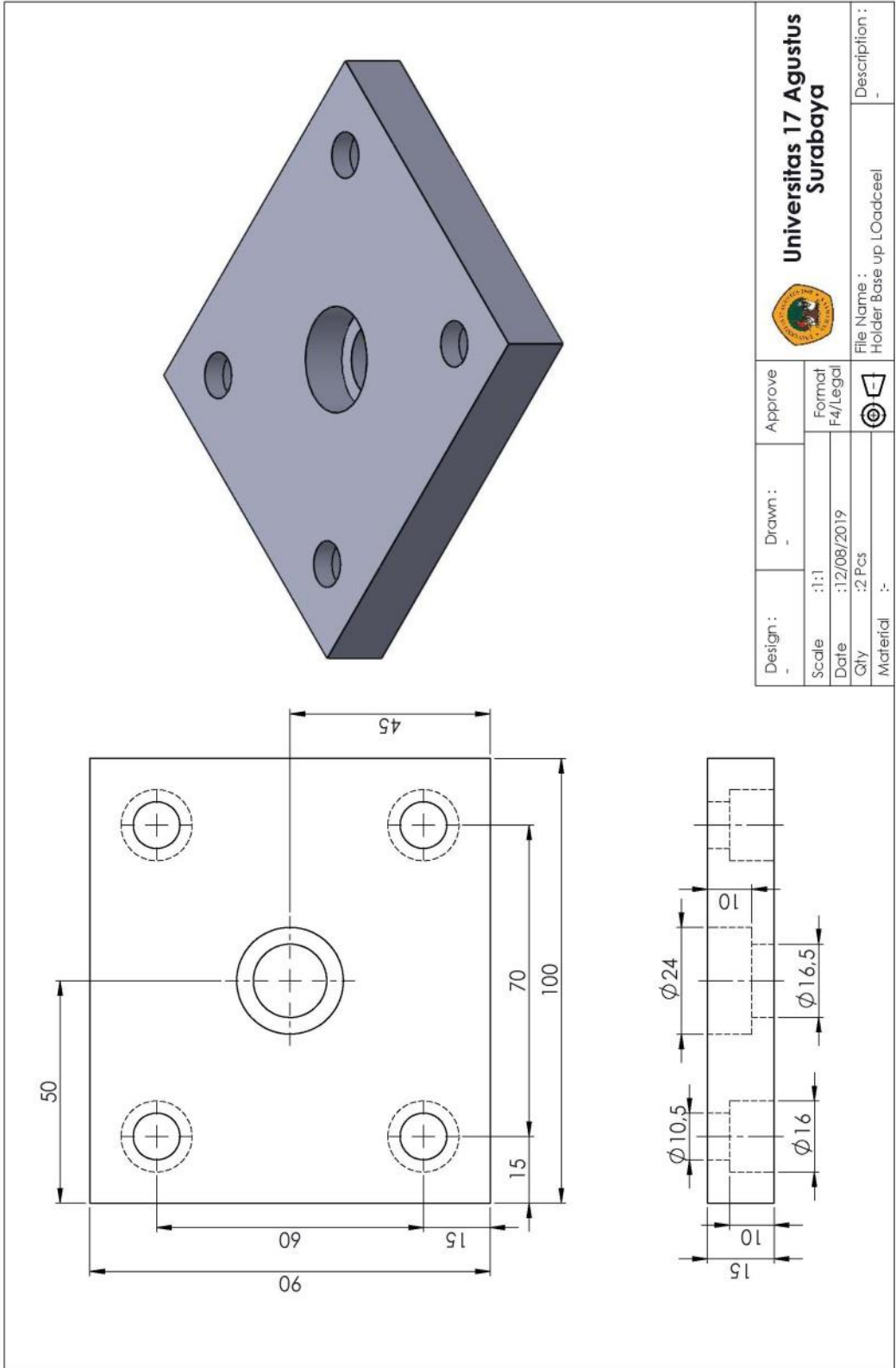
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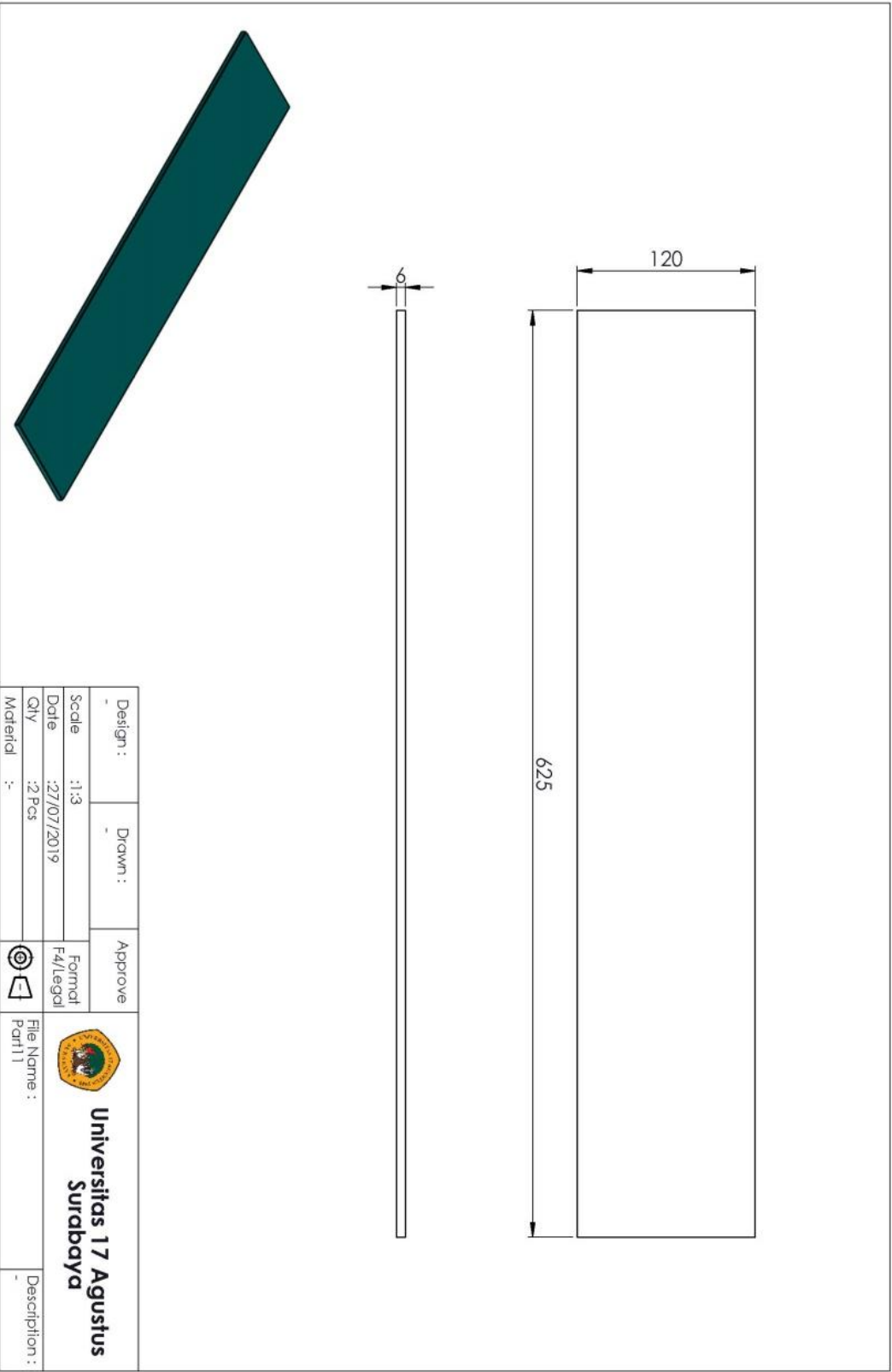
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Qty : 2 Pcs	Material :	 		



Design :	Drawn :	Approve	 <p>Universitas 17 Agustus Surabaya</p>
Scale : 1:1		Formul F4/Legid	
Date : 12/08/2019			
Qty : 2 Pcs			
Material :		 	File Name : Holder Base Loadcell
Description :			



Design :	Drawn :	Approve	 Universitas 17 Agustus Surabaya File Name : Holder Base up L0adceel Description :
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Date : 12/08/2019			
Qty : 2 Pcs			
Material :			




M10x1.5

615

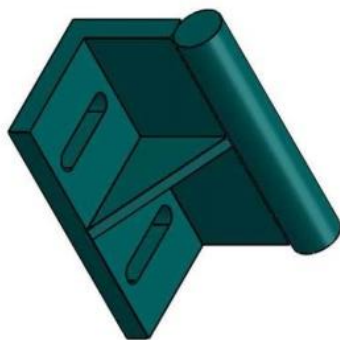
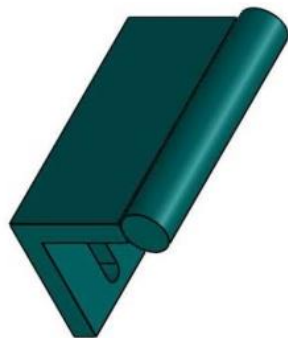
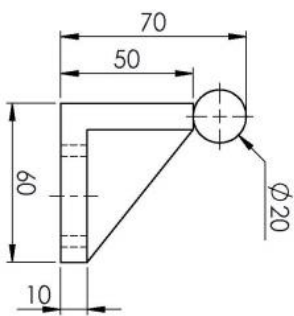
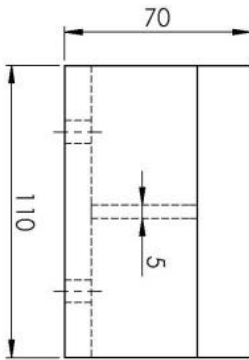
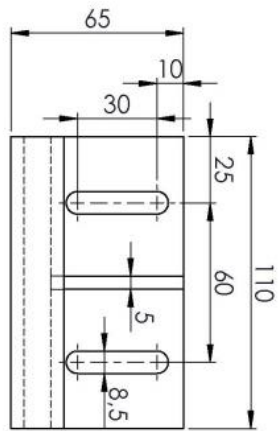
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Date : 29/07/2019	Qty : 4 Pcs	
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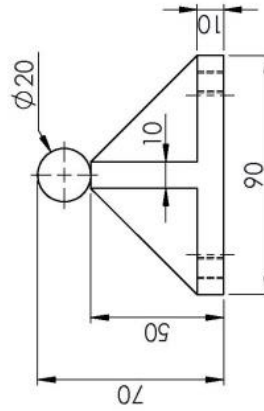
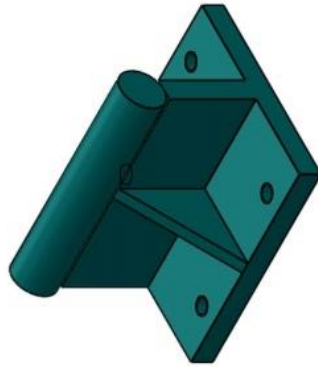
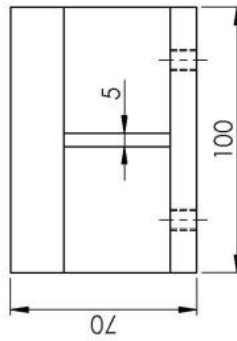
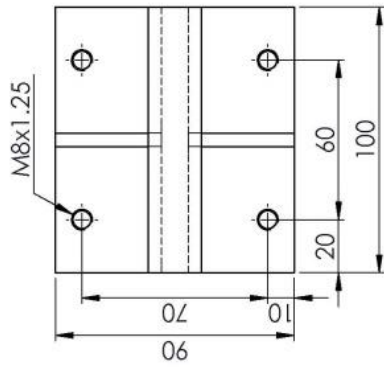

Universitas 17 Agustus Surabaya

File Name : Part12

Description : -



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Scale : 1:2		Formul	
Date : 27/07/2019		F4/Legal	
Qty : 2 Pcs			
Material :-			
 			File Name : Part13
			Description :



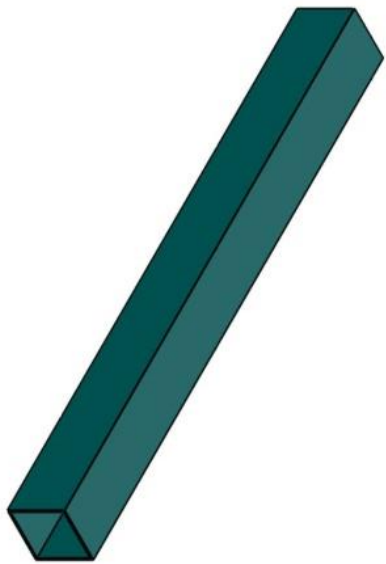
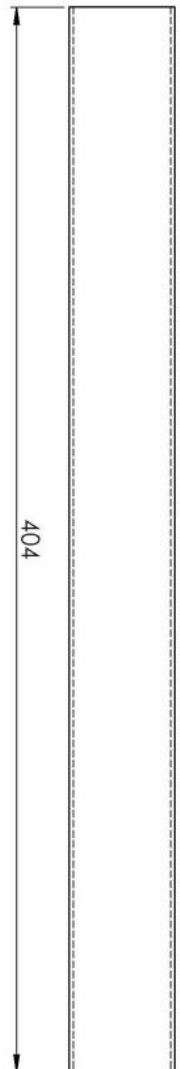
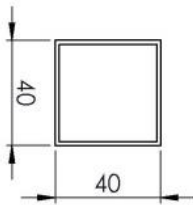
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Scale : 1:2	Format : F4/Legal	
Date : 27/07/2019		
Qty : 1 Pcs		
Material :		






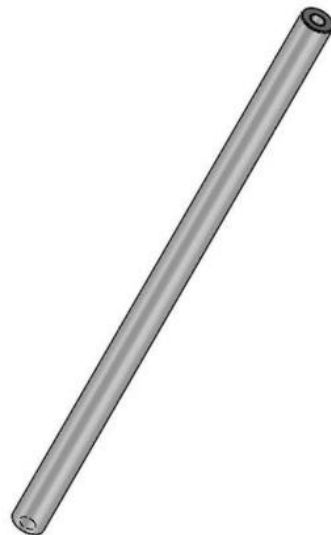
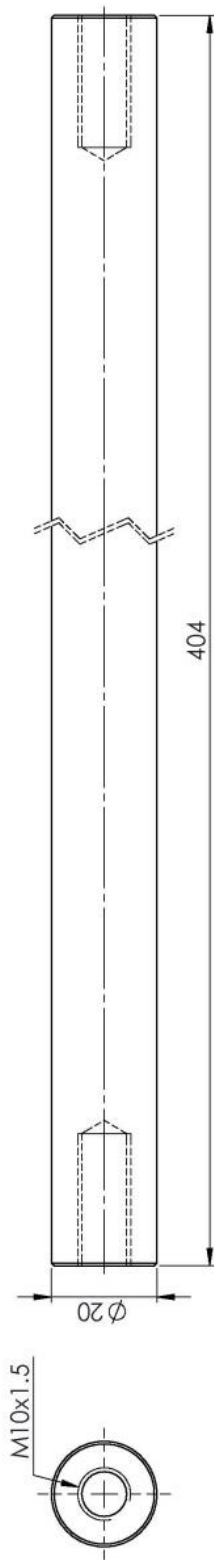
Universitas 17 Agustus
Surabaya




File Name :
Part 14

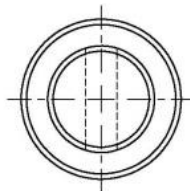
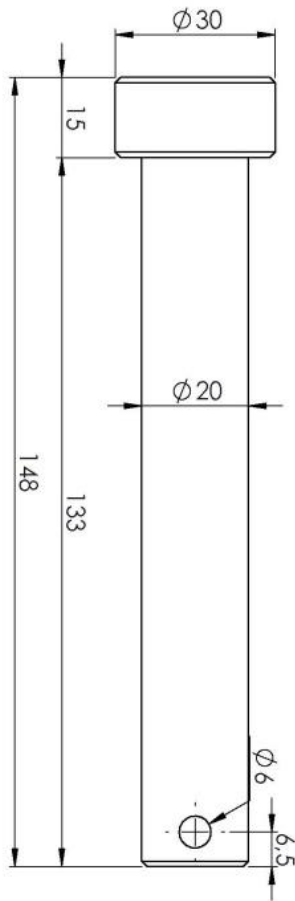
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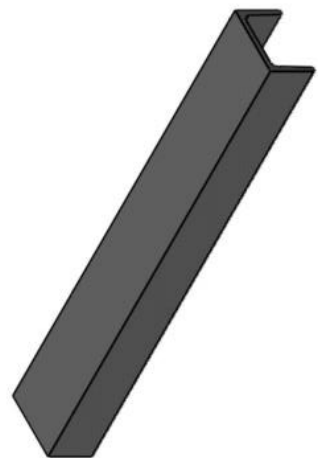
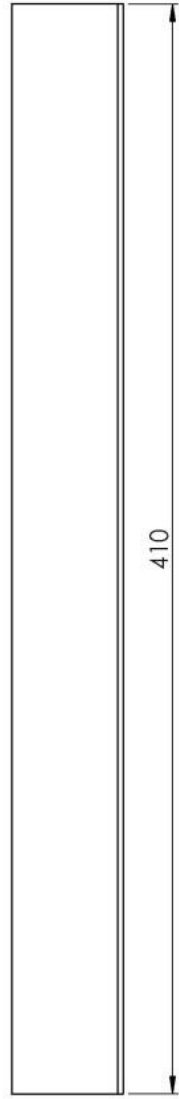
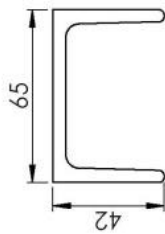
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Date : 29/07/2019				
Qty : 2 Pcs				
Material :				
		 	File Name : Part15	



 Universitas 17 Agustus Surabaya		Approve 		Description : -
Design : -	Drawn : -	Scale : No Scale Date : 29/07/2019 Qty : 2 Pcs Material :	Format : F4/Legal 	File Name : Part16



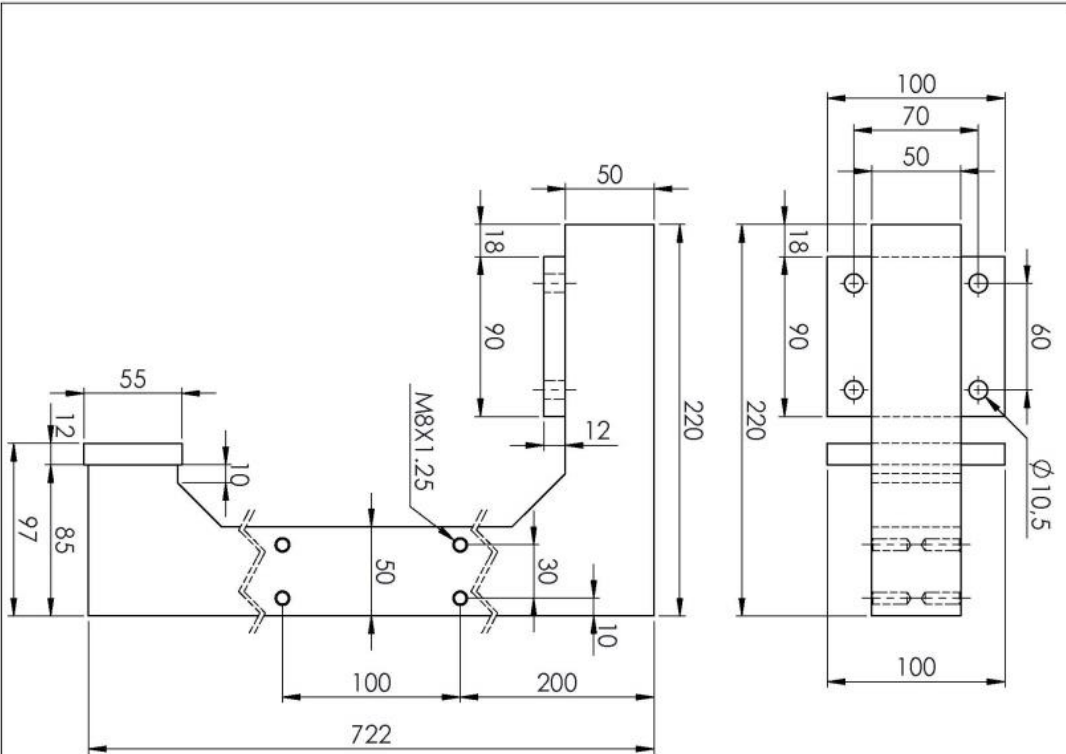
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Scale : 1:1		Formot		
Date : 29/07/2019		F4/Legal		
Qty : 2 Pcs				
Material :-		 	File Name : Part17	



Design : _		Drawn : _		Approve _	
Scale	:1:2	Date	:29/07/2019	Qty	:3 Pcs
Material	:-	Format	F4/Legal	File Name :	Part18
				Description : _	



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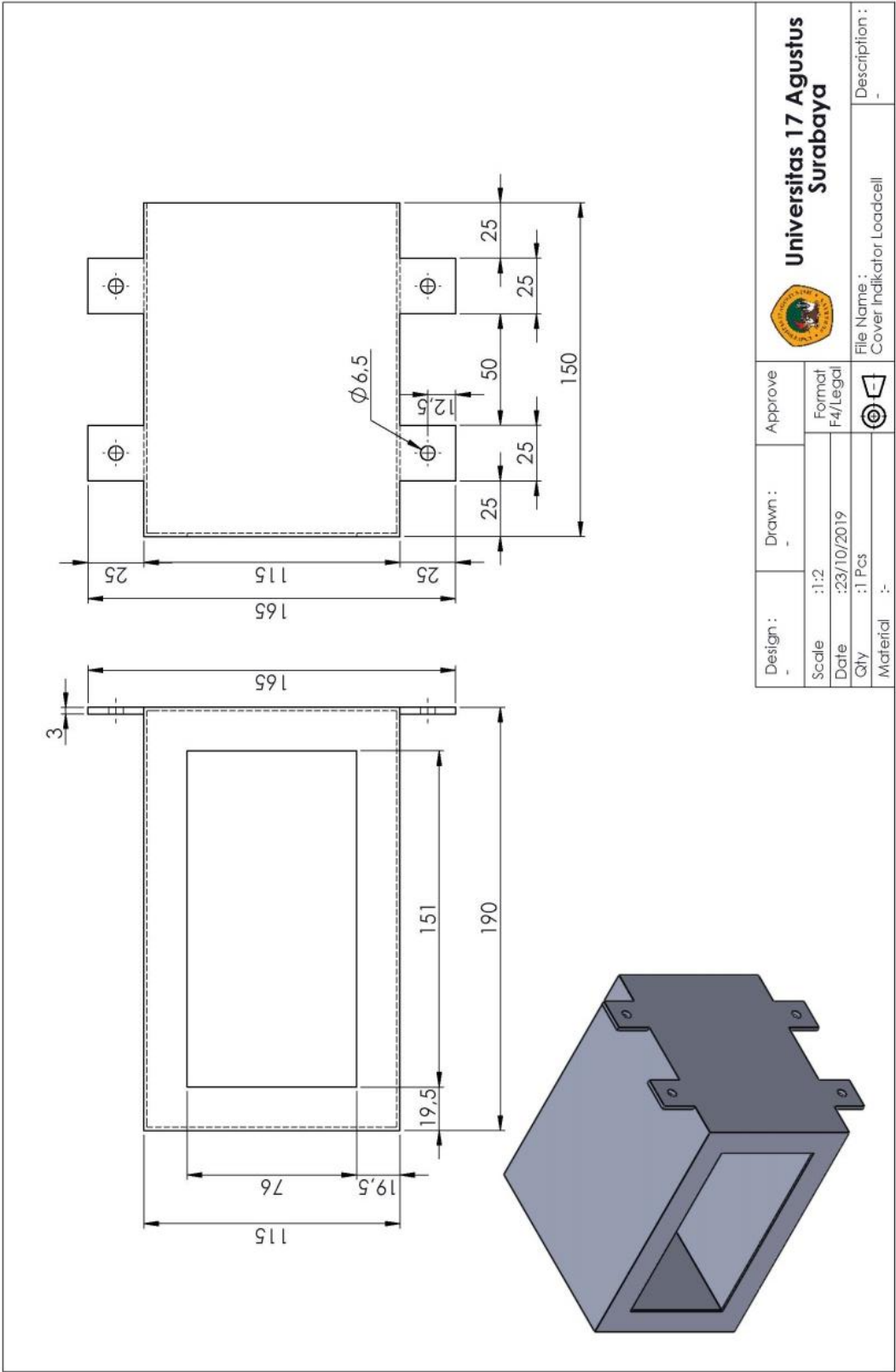


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Scale : No Scale		Format F4/Legal
Date : 12/08/2019		
Qty : 1 Pcs		
Material :-		

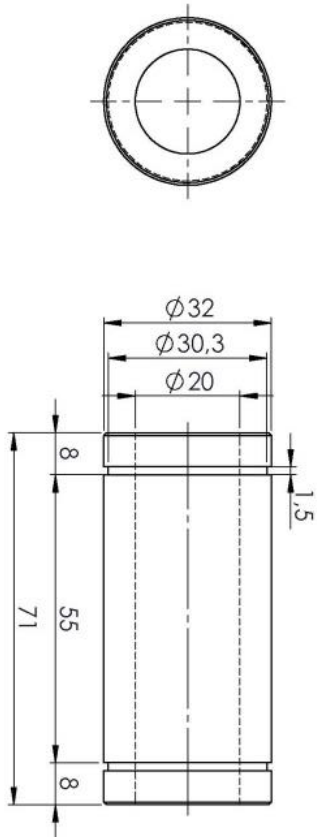



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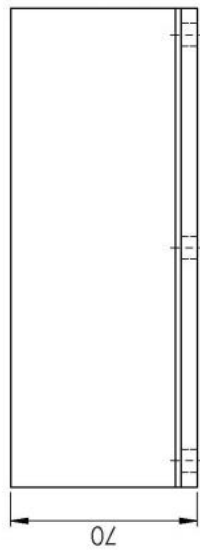
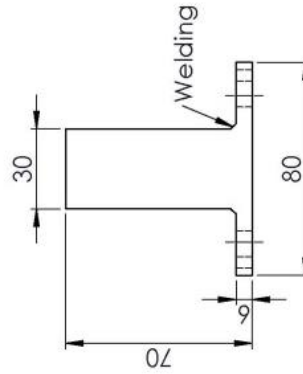
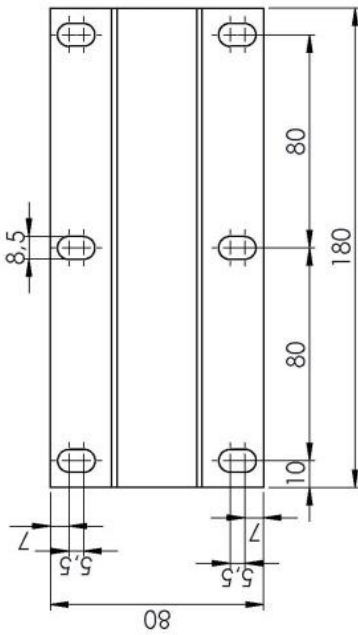
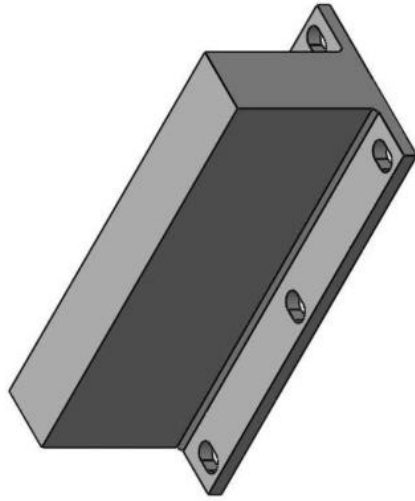
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Description :



 Universitas 17 Agustus Surabaya		Design : Drawn : Approve :	
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			Description : -



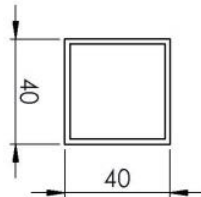
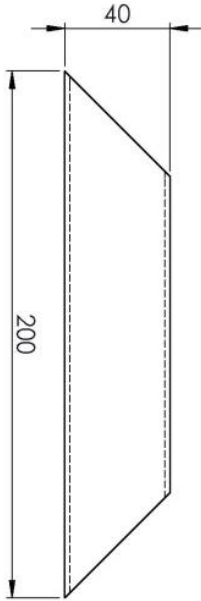
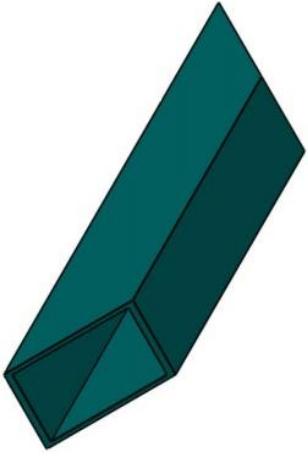
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Scale : 1:1	Formul			
Date : 12/08/2019	F4/Legid			
Qty : 4 Pcs	File Name : Part21			
Material :				






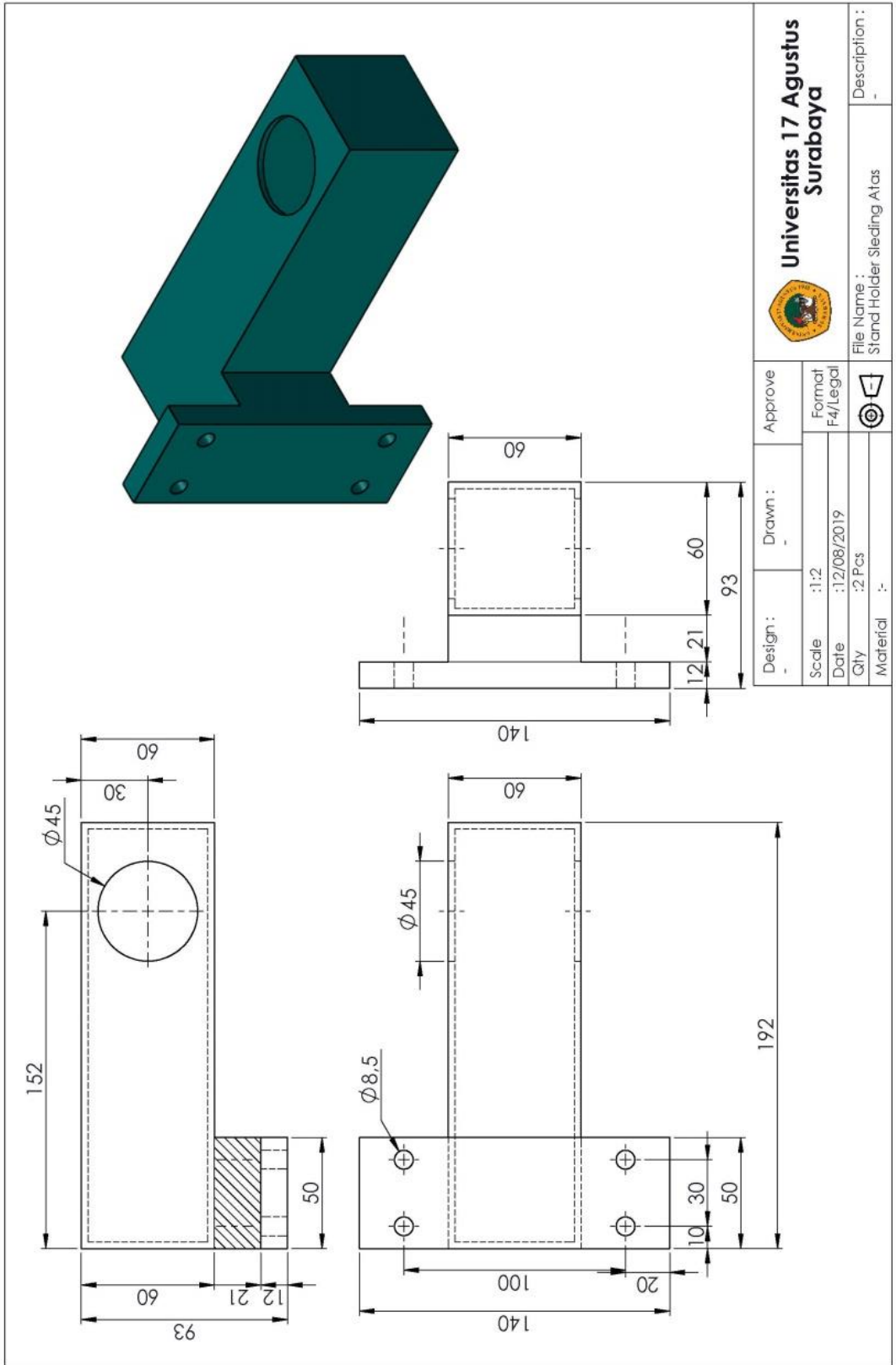

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Surabaya**

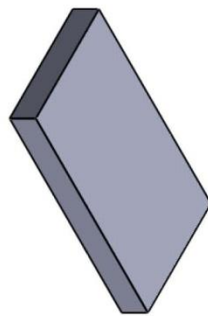
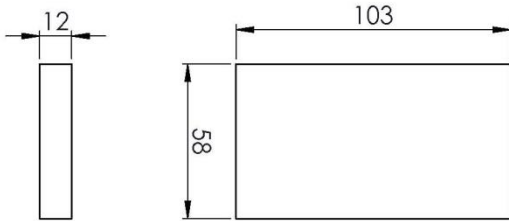
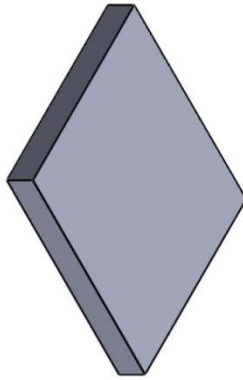
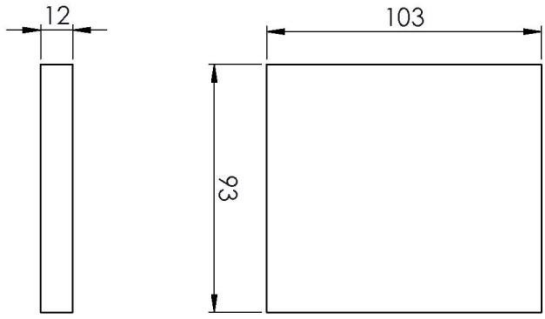
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Description :




Design :	Drawn :	Approve :
Scale : 1:2	Format : F4/Legal	
Date : 12/08/2019		
Qty : 1 Pcs		
Material : -		

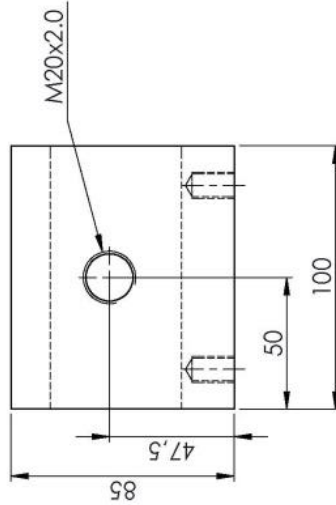
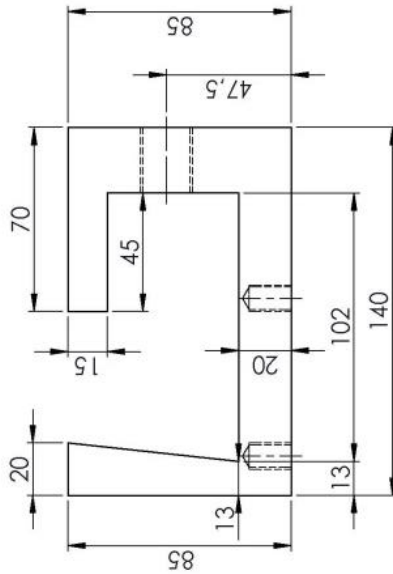
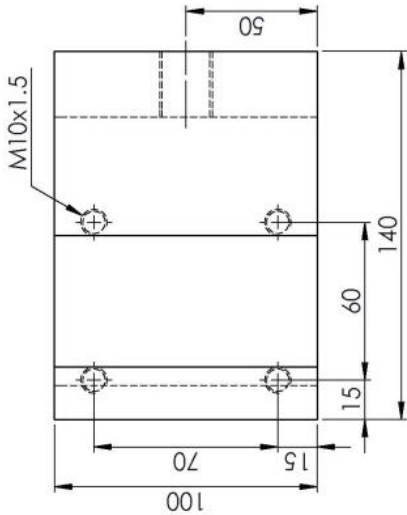
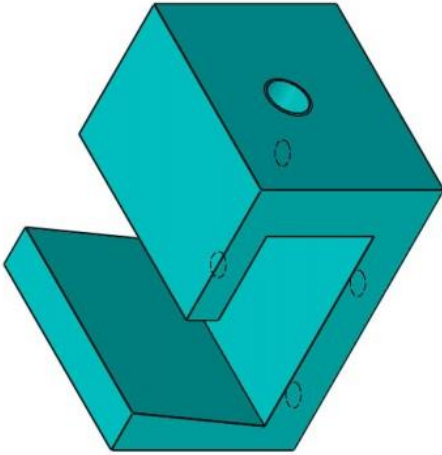



Design :	Drawn :	Approve	 Universitas 17 Agustus Surabaya	Description :
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Date : 22/08/2019				
Qty : 4 Pcs				
Material :-		 		
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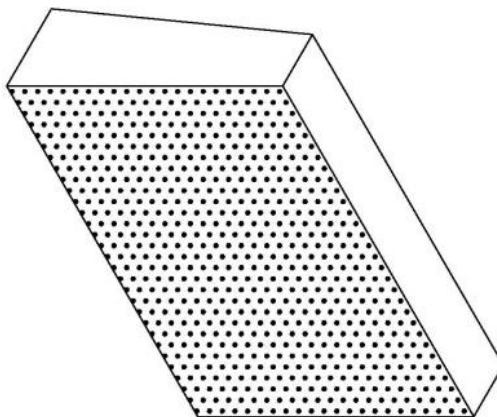
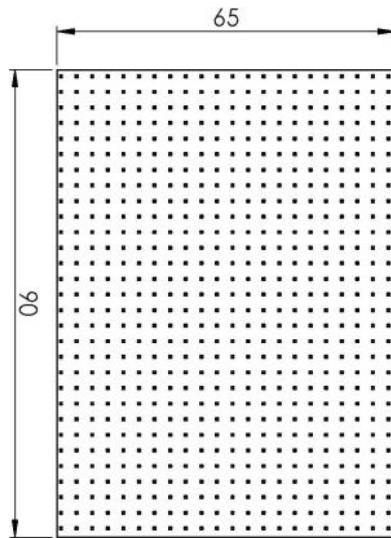
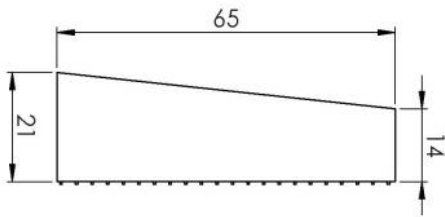




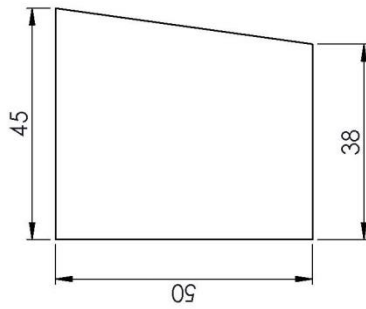
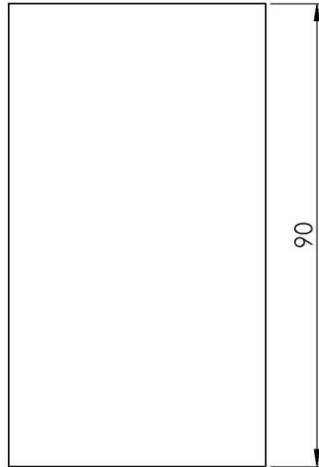
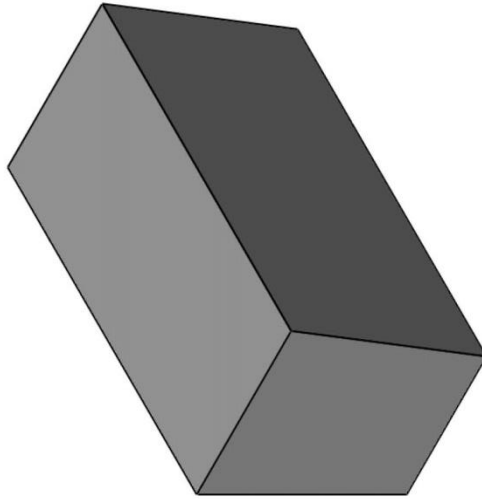
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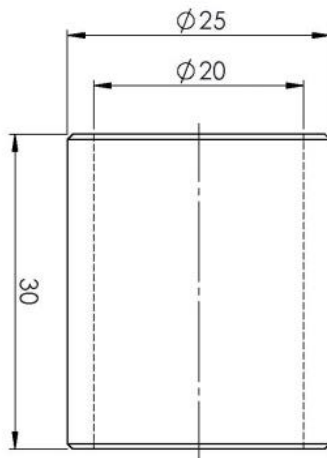
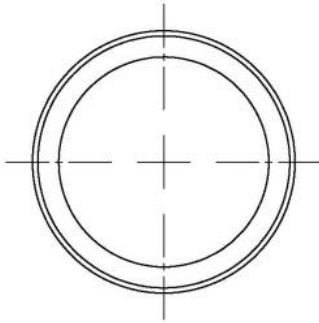
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Date : 10/08/2019				
Qty : 1 Pcs				
Material :				




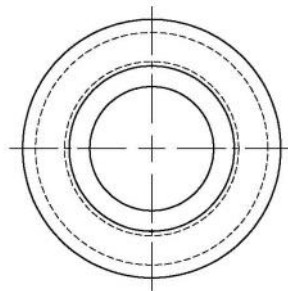
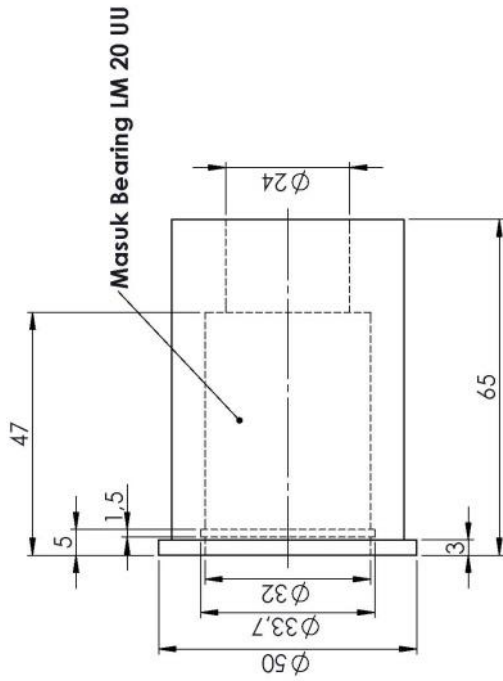
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Date : 05/09/2019			
Qty : 4 Pcs			
Material :-			
			File Name : Rogum 2
			Description :




Design : _	Drawn : _	Approve _	 Universitas 17 Agustus Surabaya		File Name : Ragum 3	Description : _
			Scale : 1:1	Format : F4/Legal		
Date : 05/09/2019	Qty : 2 Pcs	Material : .	 			



Design :	Drawn :	Approve
Scale : 2:1		Formal
Date : 12/08/2019		F4/Legal
Qty : 4 Pcs		
Material :-		
		
Universitas 17 Agustus Surabaya		
File Name : IR 20 x 25x 30	Description :	



Design : _	Drawn : _	Approve _	 Universitas 17 Agustus Surabaya File Name : Housing Bearing Sleding Atas Description : _
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Qty : :2 Pcs	Material : _		