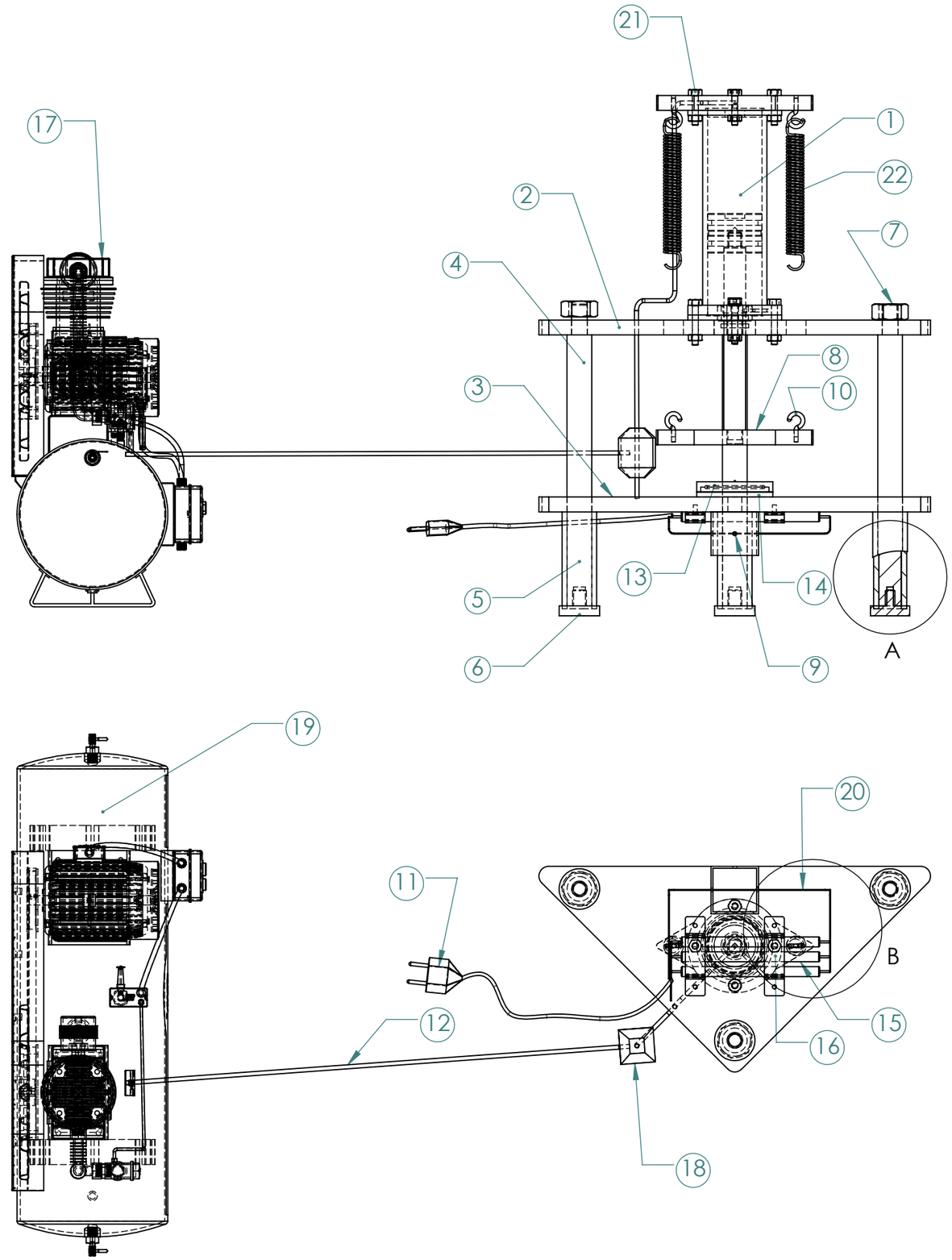
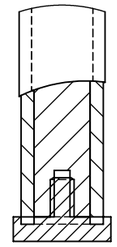
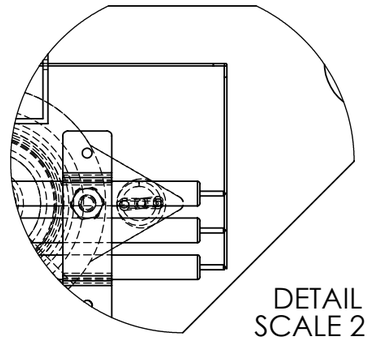
LAMPIRAN 1





DETAIL A
SCALE 2 : 5



DETAIL B
SCALE 2 : 5

No	Jml	Nama Bagian	Bahan	Standarisasi	Catatan
22	2	Spring	ST 37		Item tersedia
21	8	Bolt & nut JIS M4			Item tersedia
20	1	Selang PVC			Item tersedia
19	1	Tanki tekan			
18	1	Katup Kontrol			Item tersedia
17	1	Piston kompressor	Generic		Item tersedia
16	2	Klem	Galvanic		
15	3	Tubular Heater	Stainless		Item tersedia
14	1	Mold Female	S45C		Item tersedia
13	1	Mold male	S45C		
12	1	Tubbing	Polyurethane		Item tersedia
11	1	Jack & Kabel	Generic		Item tersedia
10	4	Hook	Steel		
9	1	Thermostat Bimetal	Generic		Item tersedia
8	1	Plat tekan	S35C		
7	3	Mur JIS St 37	ST 37		Item tersedia
6	3	Spull	Steel		
5	3	Boss	Steel		
4	3	Poros kaki	Steel		
3	1	Plat dasar	Steel		
2	1	Plat atas	Steel		
1	1	Pneumatik	Steel		

Kekerasan Permukaan μm

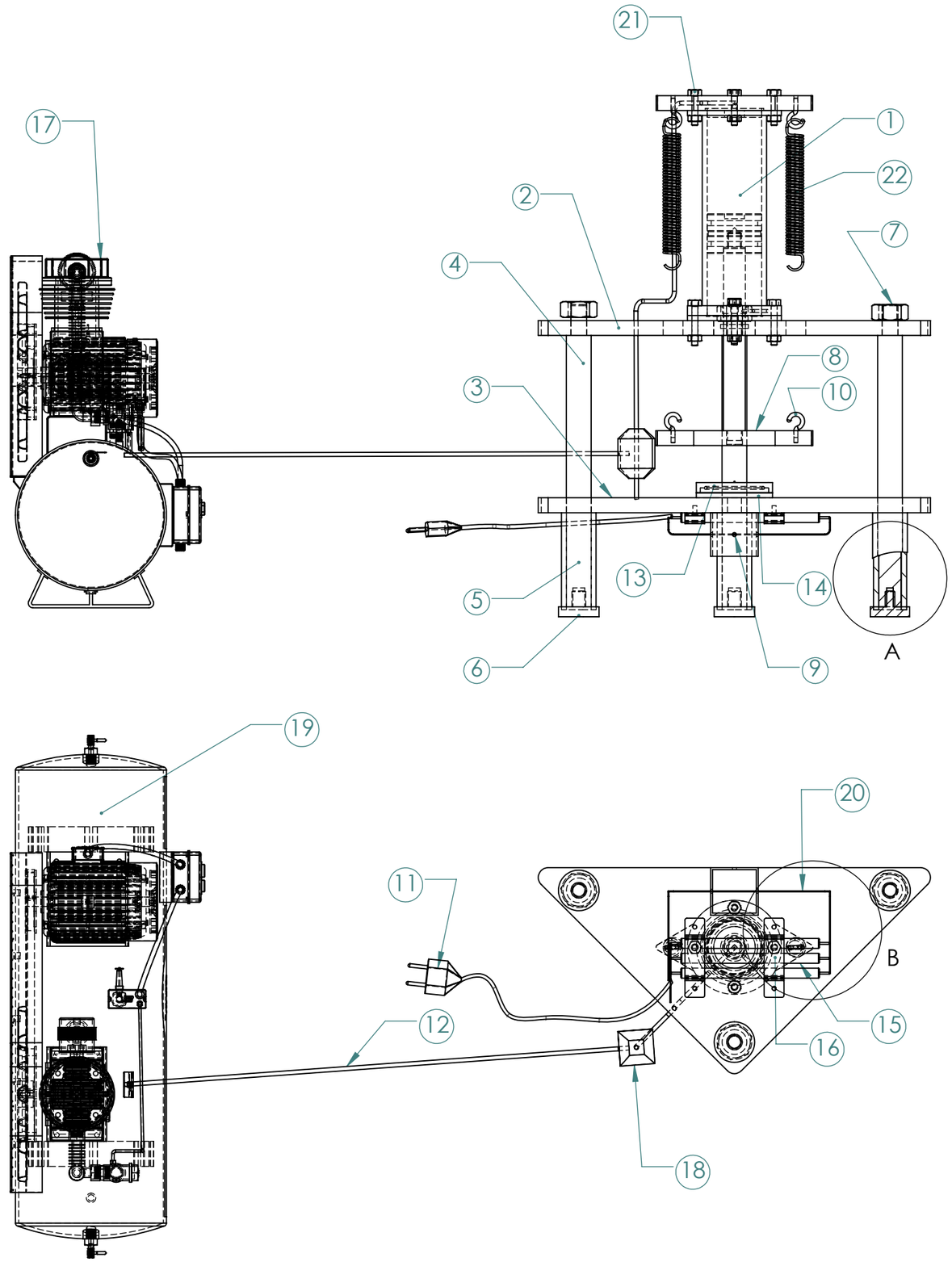
Toleransi Ukuran dalam μm

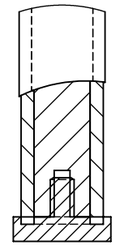
Satuan : mm
Skala : 1:5
Tanggal : 17-08-17

Digambar: Habibi
NIM: 20130130220
Dilihat: Cahyo B. S.T., M.Sc.

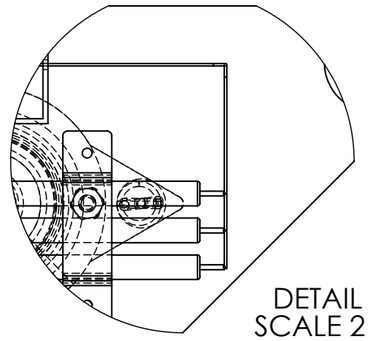
Peringatan

TEKNIK MESIN	MESIN COMPRESSION MOLDING	No 1	A3





DETAIL A
SCALE 2 : 5

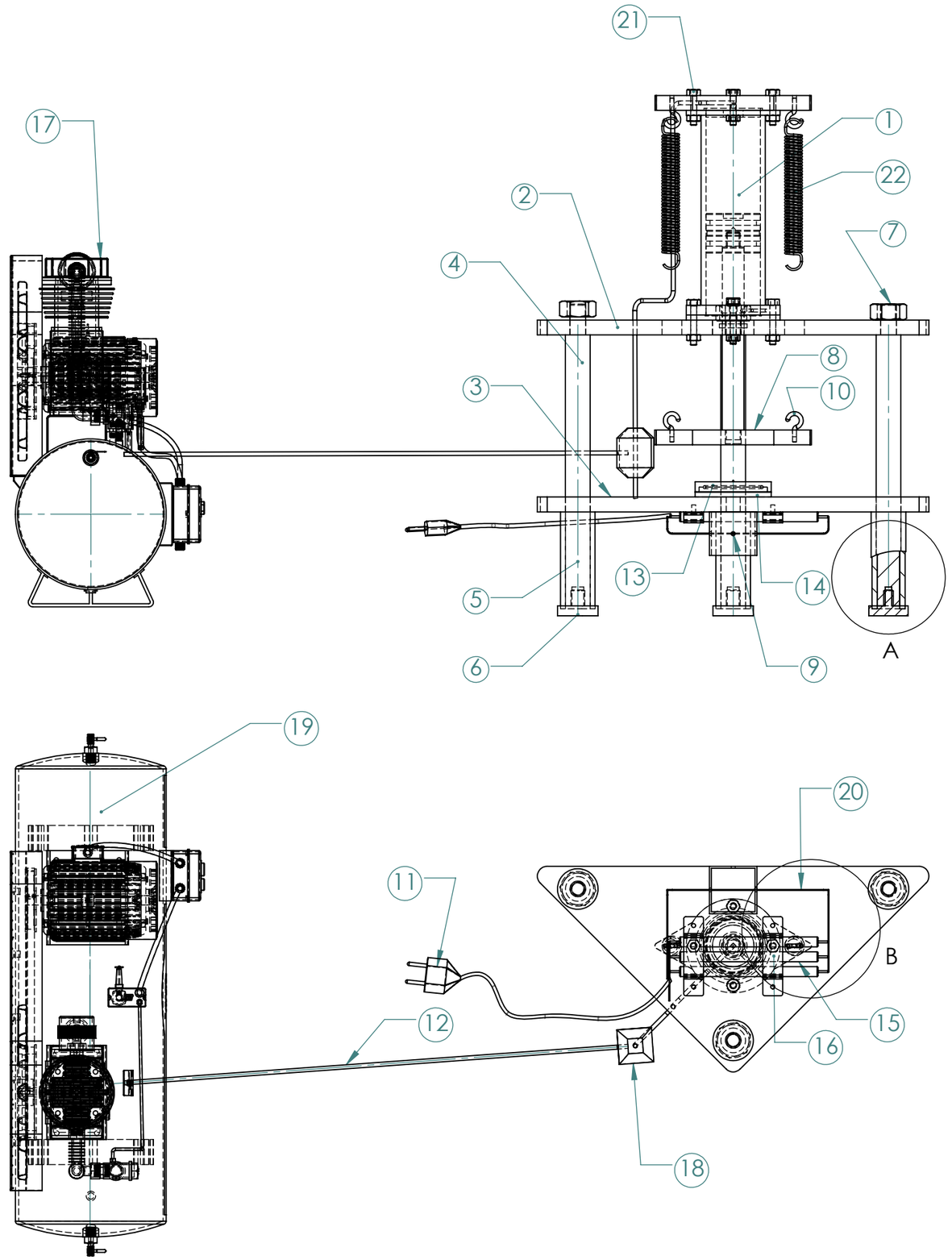


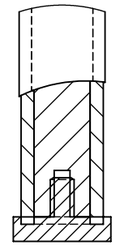
DETAIL B
SCALE 2 : 5

No	Jml	Nama Bagian	Bahan	Standarisasi	Catatan
22	2	Spring	ST 37		Item tersedia
21	8	Bolt & nut JIS M4			Item tersedia
20	1	Selang PVC			Item tersedia
19	1	Tanki tekan			
18	1	Katup Kontrol			Item tersedia
17	1	Piston kompressor	Generic		Item tersedia
16	2	Klem	Galvanic		
15	3	Tubular Heater	Stainless		Item tersedia
14	1	Mold Female	S45C		Item tersedia
13	1	Mold male	S45C		
12	1	Tubbing	Polyurethane		Item tersedia
11	1	Jack & Kabel	Generic		Item tersedia
10	4	Hook	Steel		
9	1	Thermostat Bimetal	Generic		Item tersedia
8	1	Plat tekan	S35C		
7	3	Mur JIS St 37	ST 37		Item tersedia
6	3	Spull	Steel		
5	3	Boss	Steel		
4	3	Poros kaki	Steel		
3	1	Plat dasar	Steel		
2	1	Plat atas	Steel		
1	1	Pneumatik	Steel		

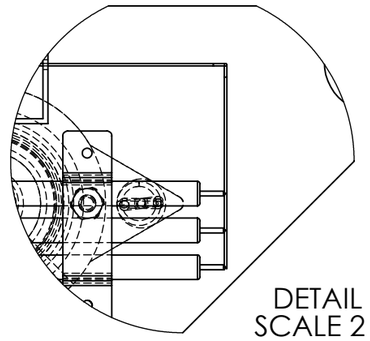
Kekerasan Permukaan μm	Toleransi Ukuran dalam μm		
	Satuan : mm	Digambar: Habibi	Peringatan
	Skala : 1:5	NIM: 20130130220	
	Tanggal : 17-08-17	Dilihat: Cahyo B. S.T., M.Sc.	

TEKNIK MESIN	MESIN COMPRESSION MOLDING	No 1	A3





DETAIL A
SCALE 2 : 5



DETAIL B
SCALE 2 : 5

No	Jml	Nama Bagian	Bahan	Standarisasi	Catatan
22	2	Spring	SUS 401		
21	8	Bolt & nut JIS M4	ST 37		Item tersedia
20	1	Selang PVC	PVC		Item tersedia
19	1	Tanki tekan	Generic		Item tersedia
18	1	Katup Kontrol	Generic		Item tersedia
17	1	Piston kompressor	Generic		Item tersedia
16	2	Klem	Galvanic		
15	3	Tubular Heater	Stainless		Item tersedia
14	1	Mold Female	S45C		
13	1	Mold male	S45C		
12	1	Tubbing	Polyurethane		Item tersedia
11	1	Jack & Kabel	Generic		Item tersedia
10	4	Hook	Steel		
9	1	Thermostat Bimetal	Generic		Item tersedia
8	1	Plat tekan	S35C		
7	3	Mur JIS St 37	ST 37		Item tersedia
6	3	Spull	Steel		
5	3	Boss	Steel		
4	3	Poros kaki	Steel		
3	1	Plat dasar	Steel		
2	1	Plat atas	Steel		
1	1	Pneumatik	Steel		

Kekerasan Permukaan μm

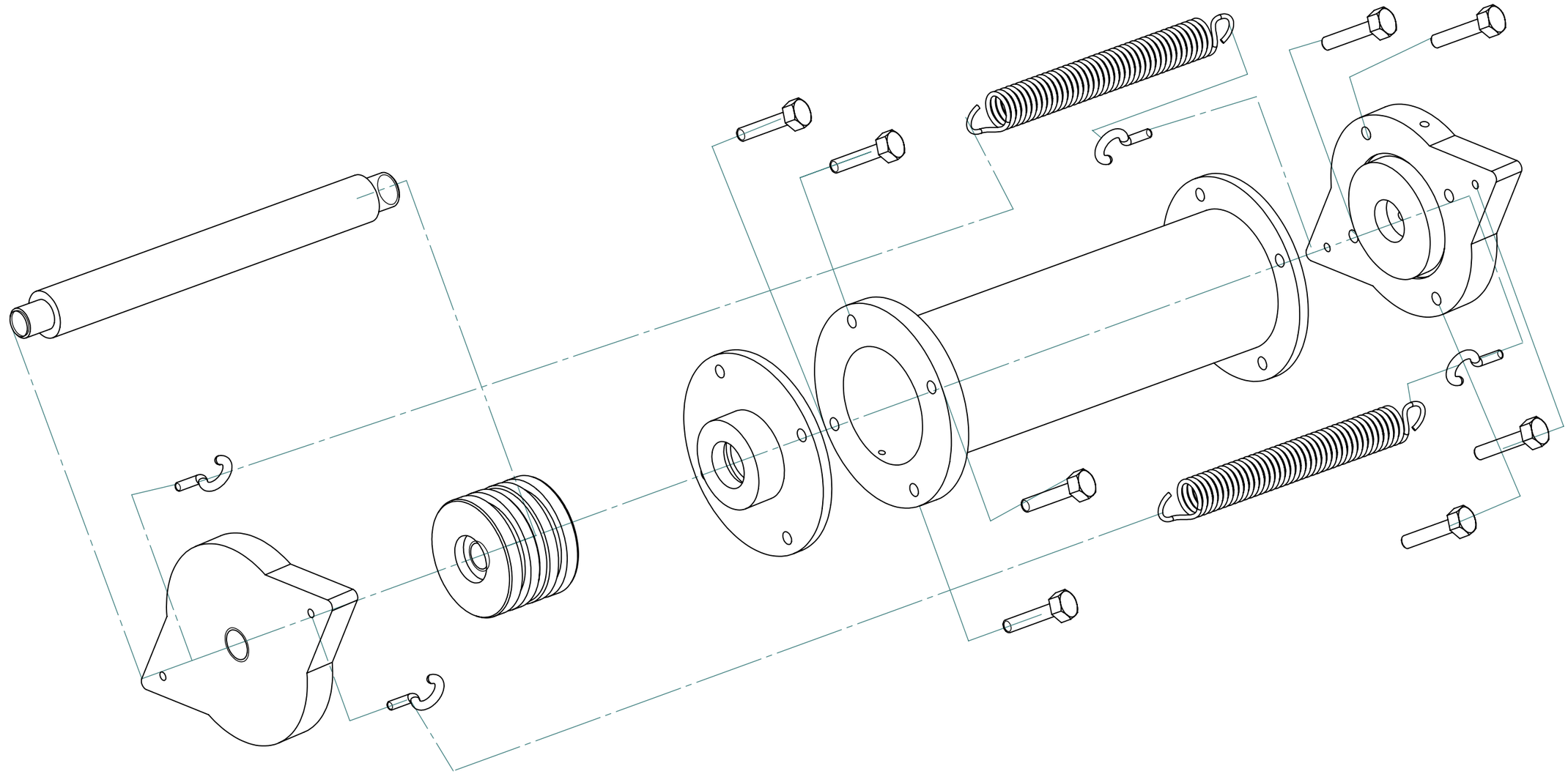
Toleransi Ukuran dalam μm

Satuan : mm
Skala : 1:5
Tanggal : 17-08-17

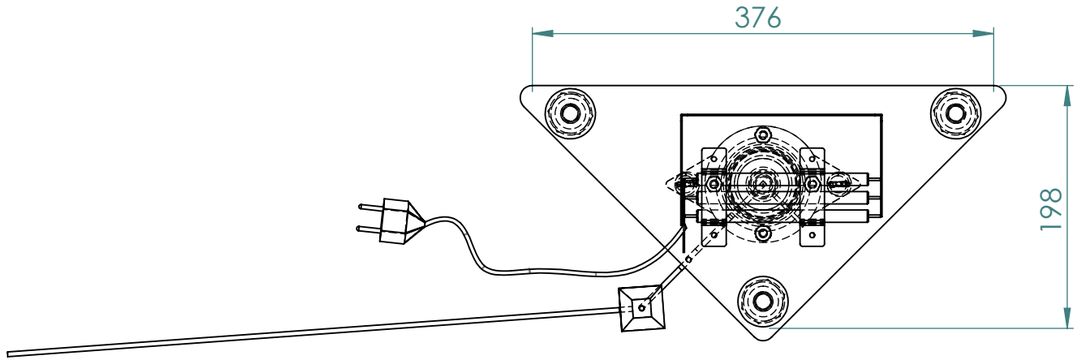
Digambar: Habibi
NIM: 20130130220
Dilihat: Cahyo B. S.T., M.Sc.

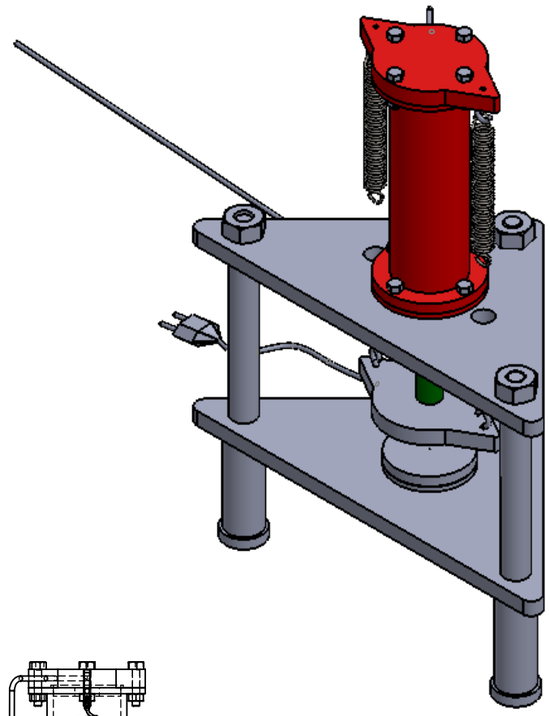
Peringatan

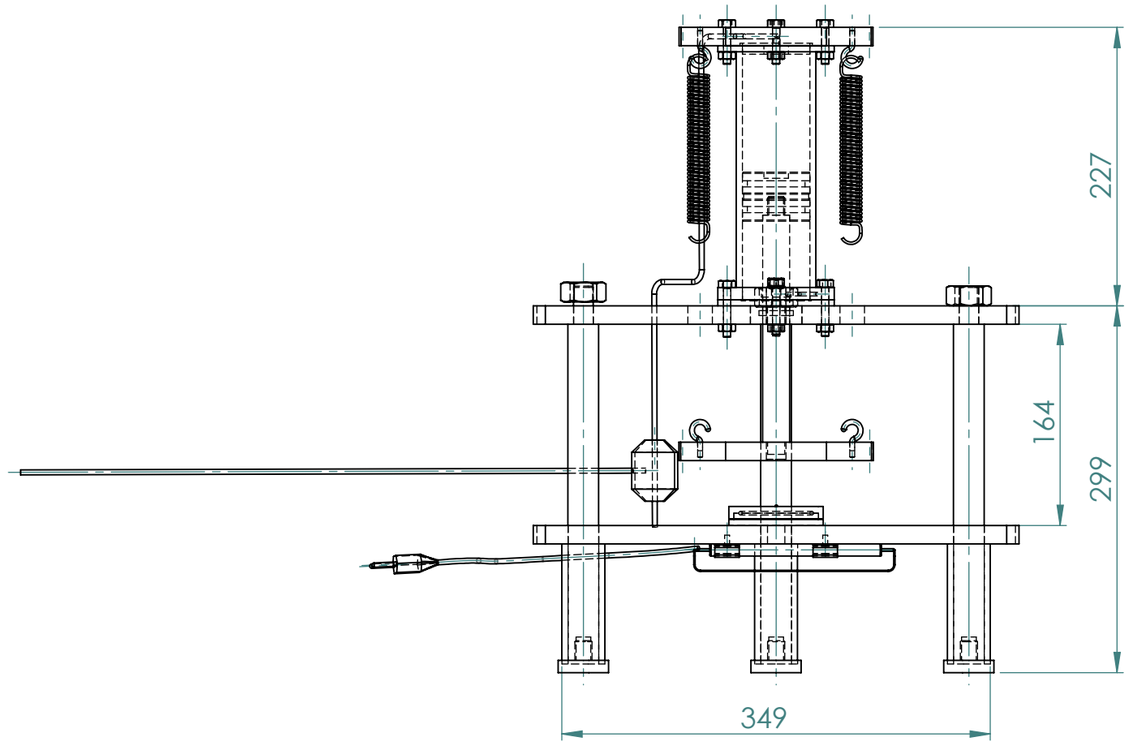
TEKNIK MESIN	MESIN COMPRESSION MOLDING	No 1	A3

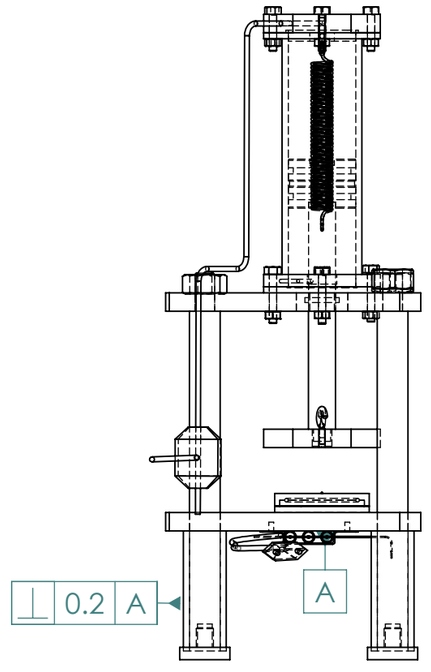


Satuan : mm	Digambar : HABIBI	Peringatan	
Skala : 1:2	NIM : 20130130220		
Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc.		
TEKNIK MESIN	PNEUMATIK	No. 02	A4

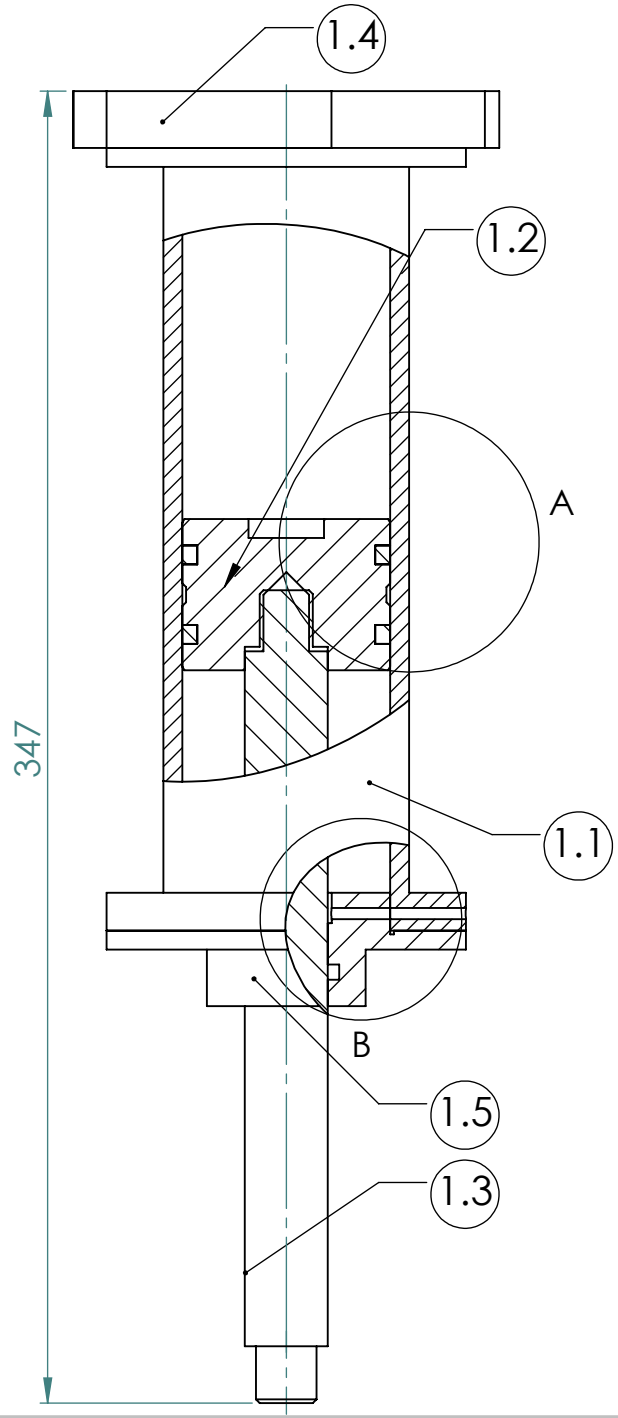


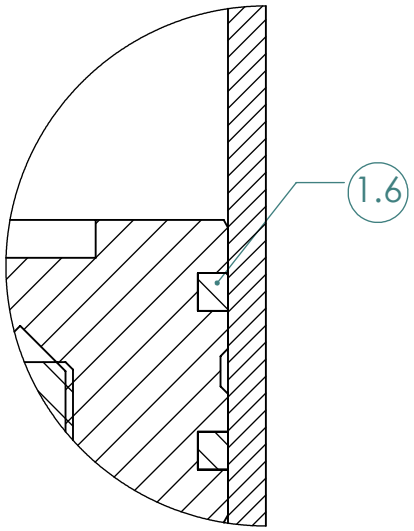




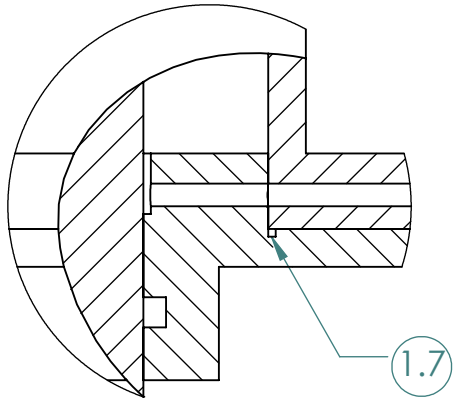


Satuan : mm	Digambar : HABIBI	Peringatan	
Skala : 1:2	NIM : 20130130220		
Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc.		
TEKNIK MESIN	GAMBAR ISOMETRI MESIN	No. 03	A4





DETAIL A
SCALE 1 : 1

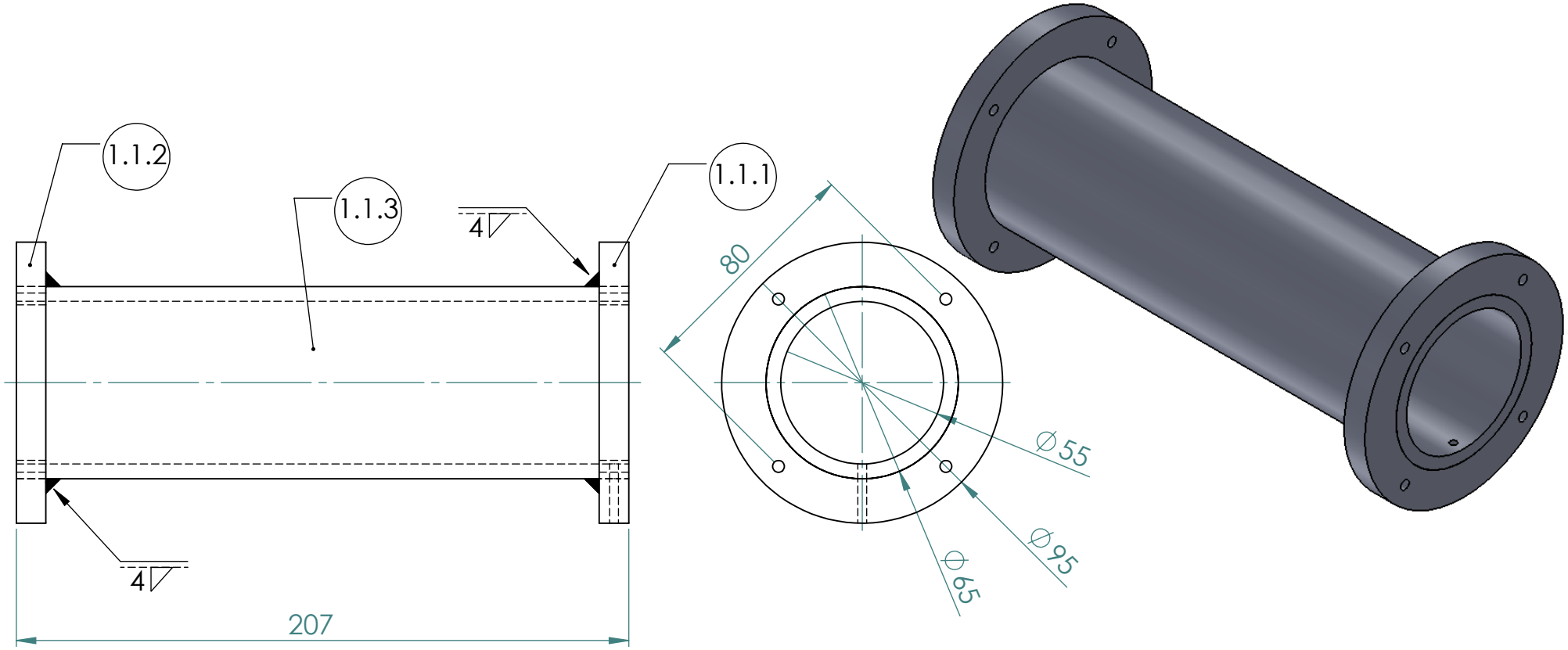


DETAIL B
SCALE 1 : 1

No	Jml	Nama Bagian	Bahan	Standarisasi	Catatan
1.7	2	Seal O-Ring	NBR		Item tersedia
1.6	2	Seal U	NBR		Item tersedia
1.5	1	Tutup dasar silinder	ST42		
1.4	1	Tutup atas silinder	ST42		
1.3	3	Rod Pistone	SUS401		
1.2	1	Pistone	ST42		
1.1	1	Cylinder	S45C		

Kekarasan Permukaan μm	Toleransi Ukuran dalam μm		
	Satuan : mm	Digambar: Habibi	Peringatan
	Skala : 1:2	NIM : 20130130220	
	Tanggal: 17-08-17	Dilihat : Cahyo B. S.T., M.Sc.	

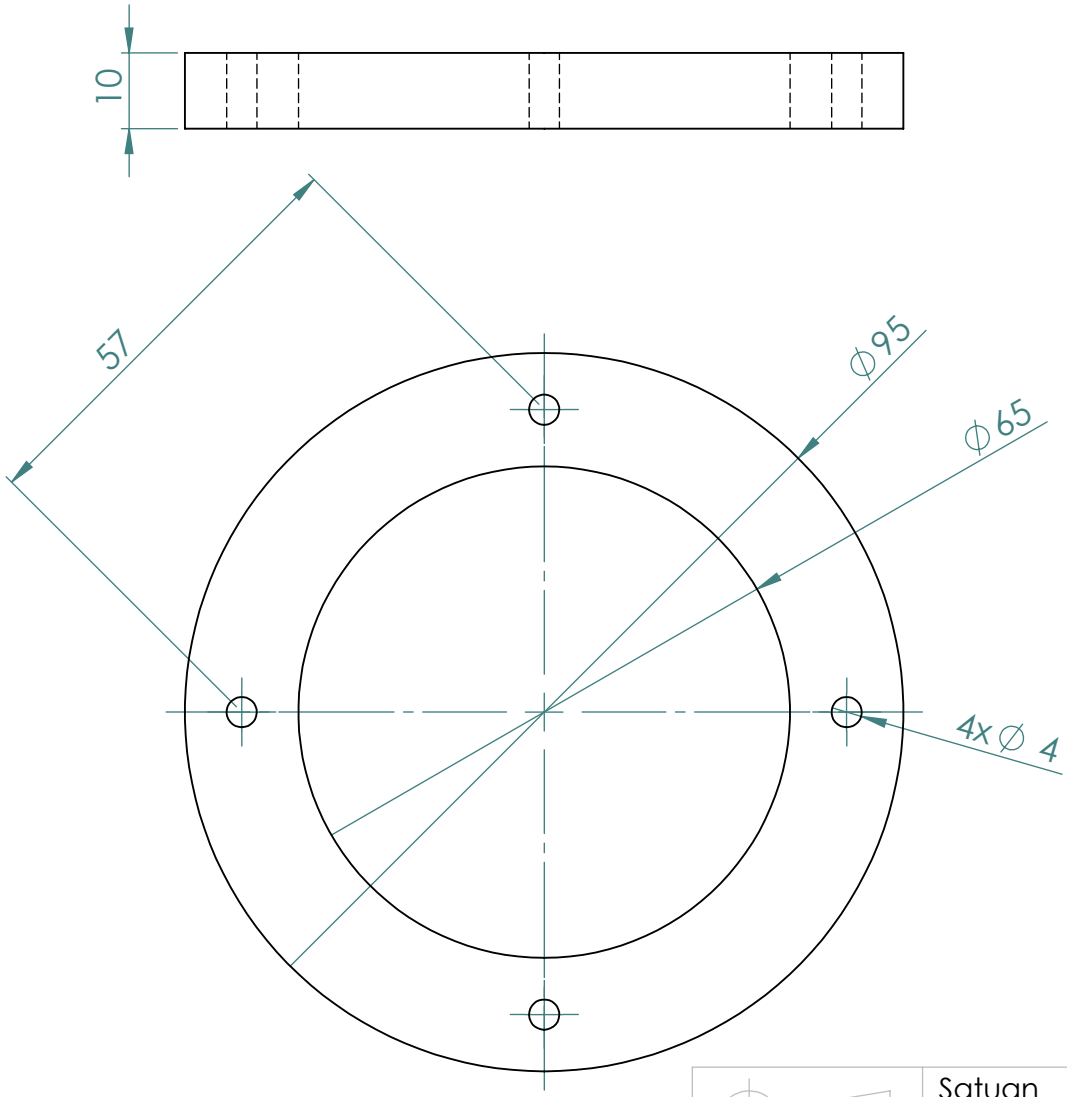
TEKNIK MESIN	PNEUMATIK	01	A4

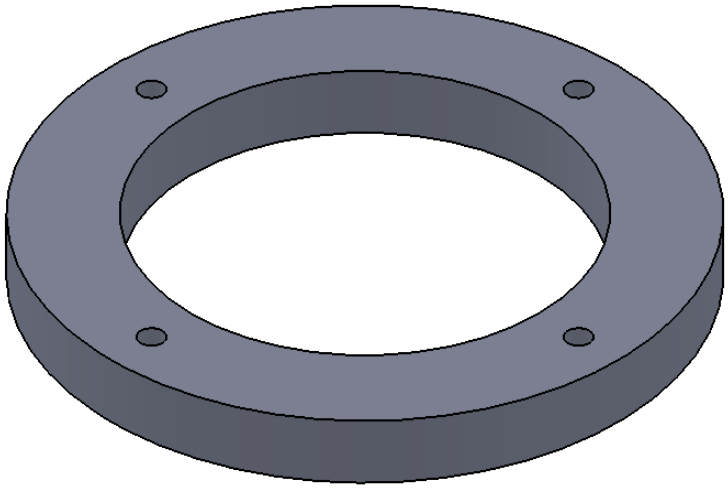


No	Jml	Nama Bagian	Bahan	Standarisasi	Catatan
1.1.3	1	Silinder	ST42		
1.1.2	1	Bibir silinder bawah	Steel		
1.1.1	1	Bibir silinder atas	Steel		

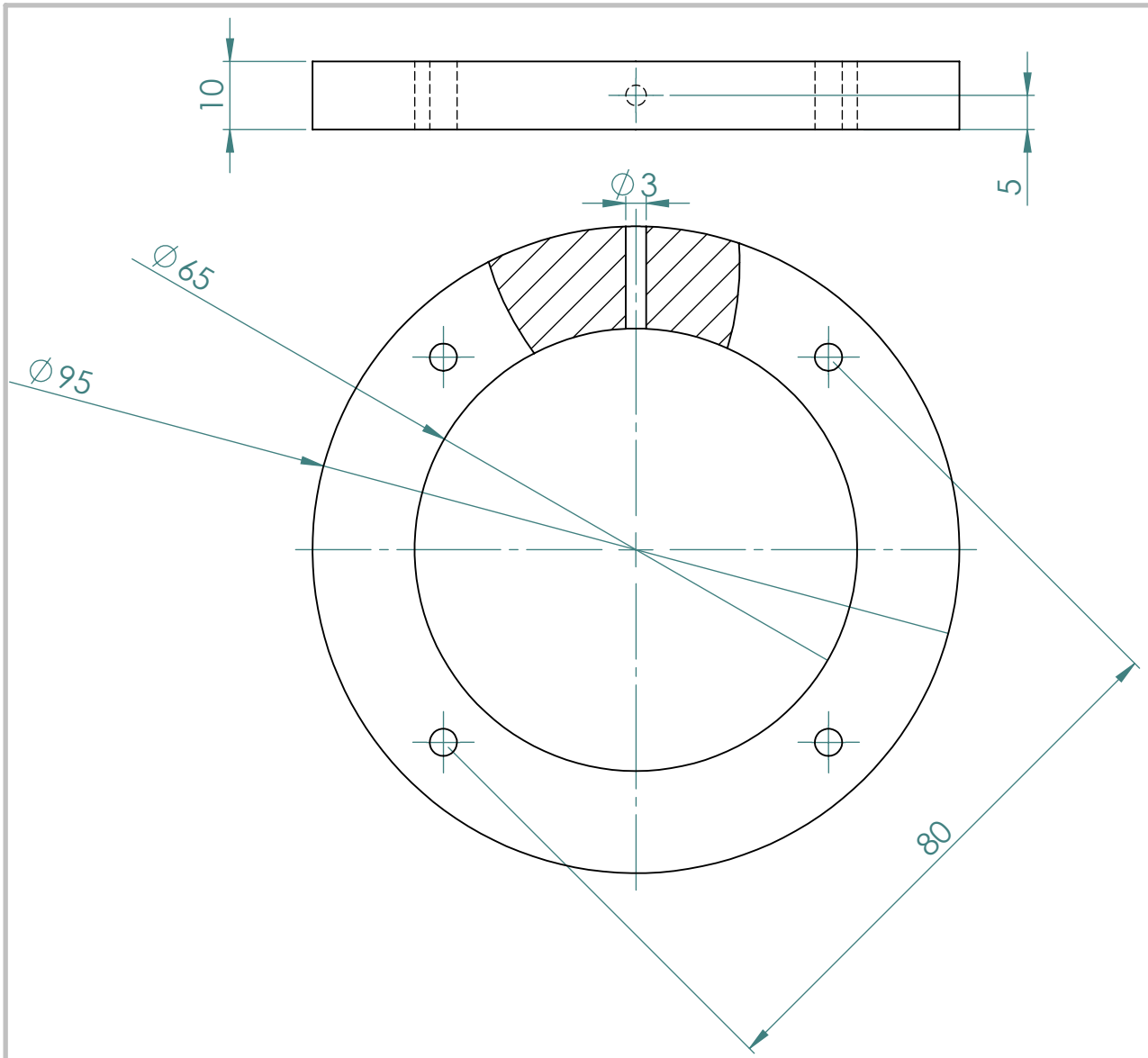
Kekarasan Permukaan μm	Toleransi Ukuran dalam μm		
	Satuan : mm	Digambar : HABIBI	Peringatan
	Skala : 1:2	NIM : 20130130220	
	Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc.	

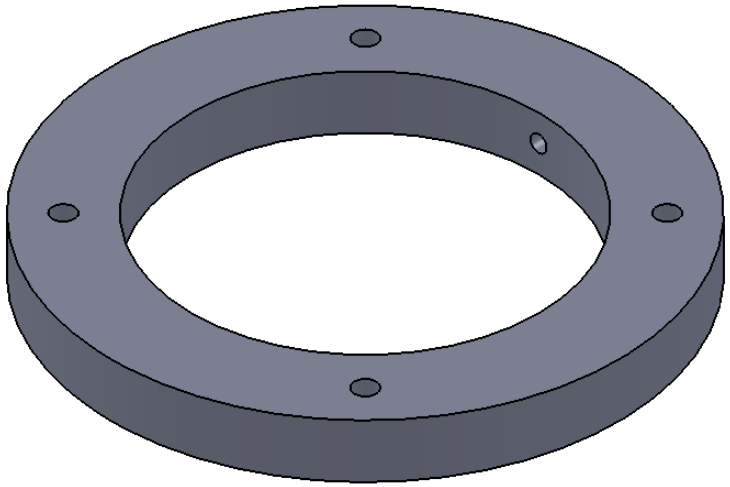
TEKNIK MESIN	ASSEMBLY SILINDER PNEUMATIK	1.1	A4



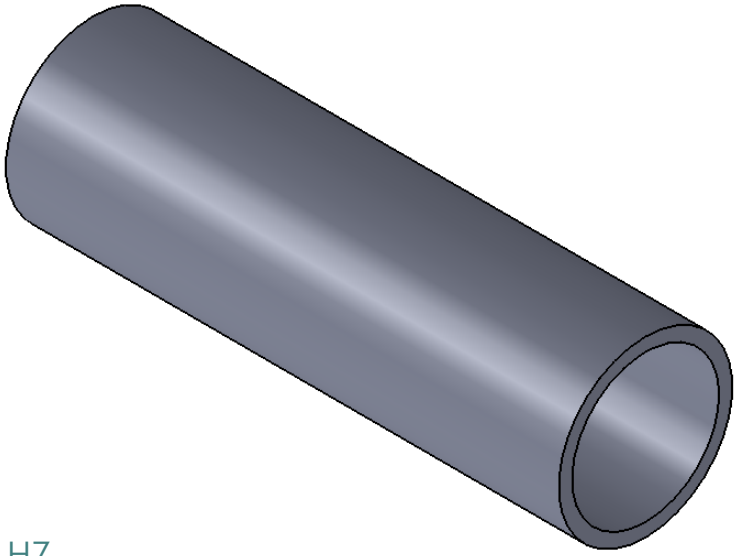


Satuan : mm	Digambar : HABIBI	Peringatan	
Skala : 1:1	NIM : 20130130220		
Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc.		
TEKNIK MESIN	Bibir Silinder Atas	1.1.1	A4

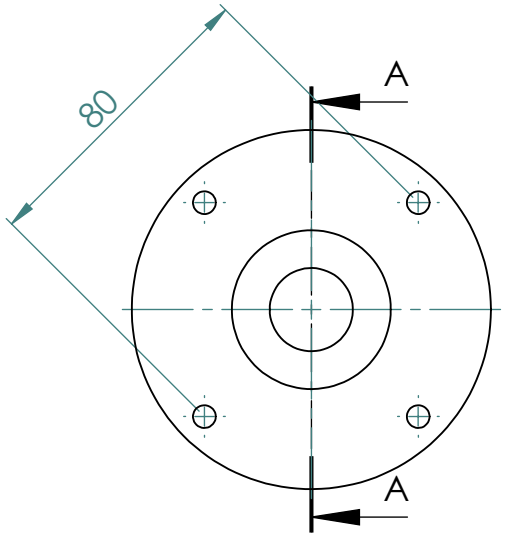


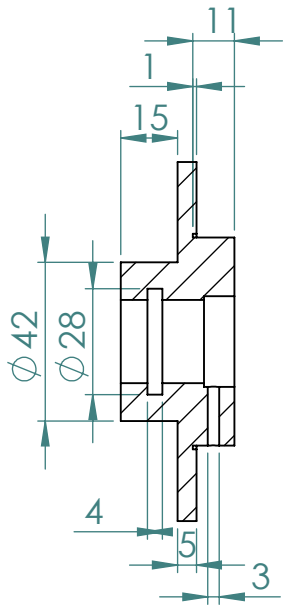


Satuan : mm	Digambar : HABIBI	Peringatan	
Skala : 1:1	NIM : 20130130220		
Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc.		
TEKNIK MESIN	Bibir Silinder Bawah	1.1.2	A4

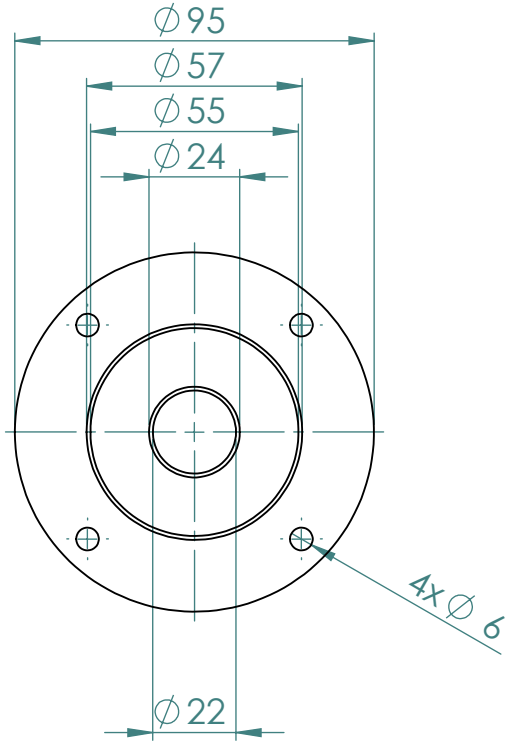


Satuan : mm	Digambar : HABIBI	Peringatan	
Skala : 1:2	NIM : 20130130220		
Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc.		
TEKNIK MESIN	Silinder	1.1.3	A4

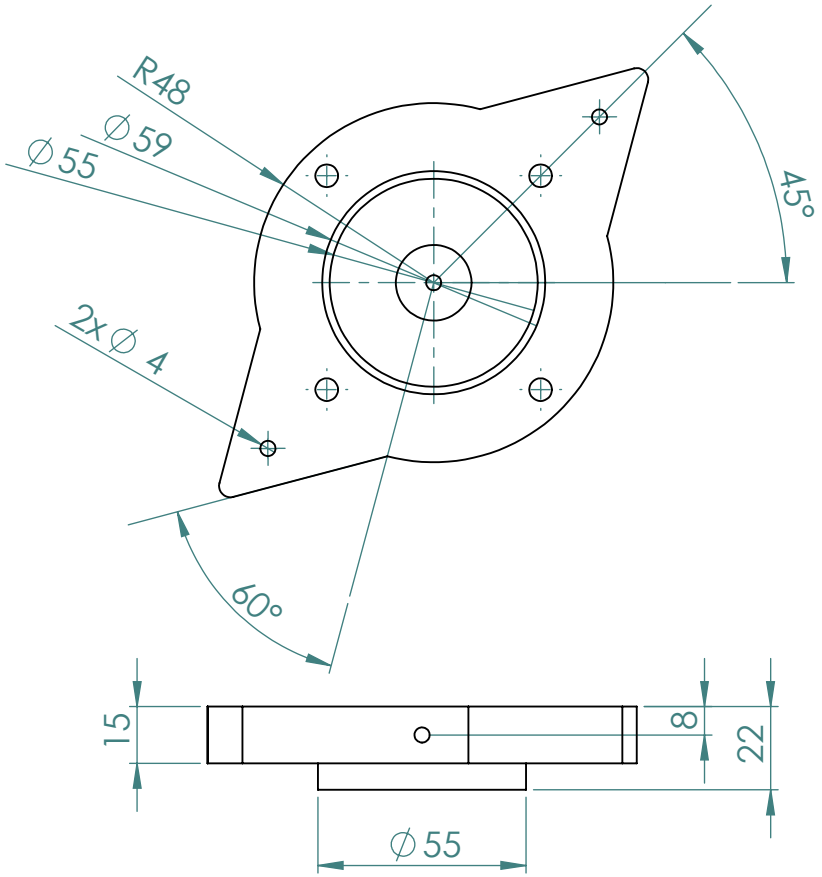


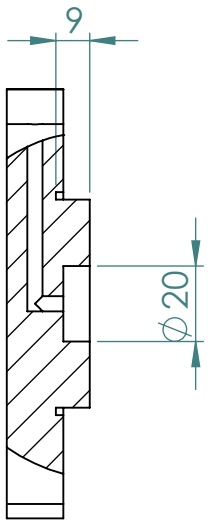


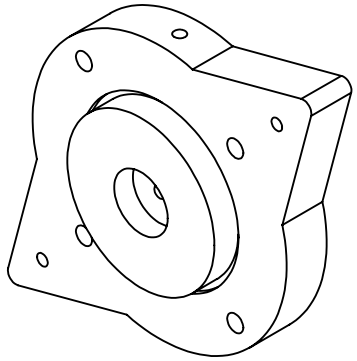
SECTION A-A



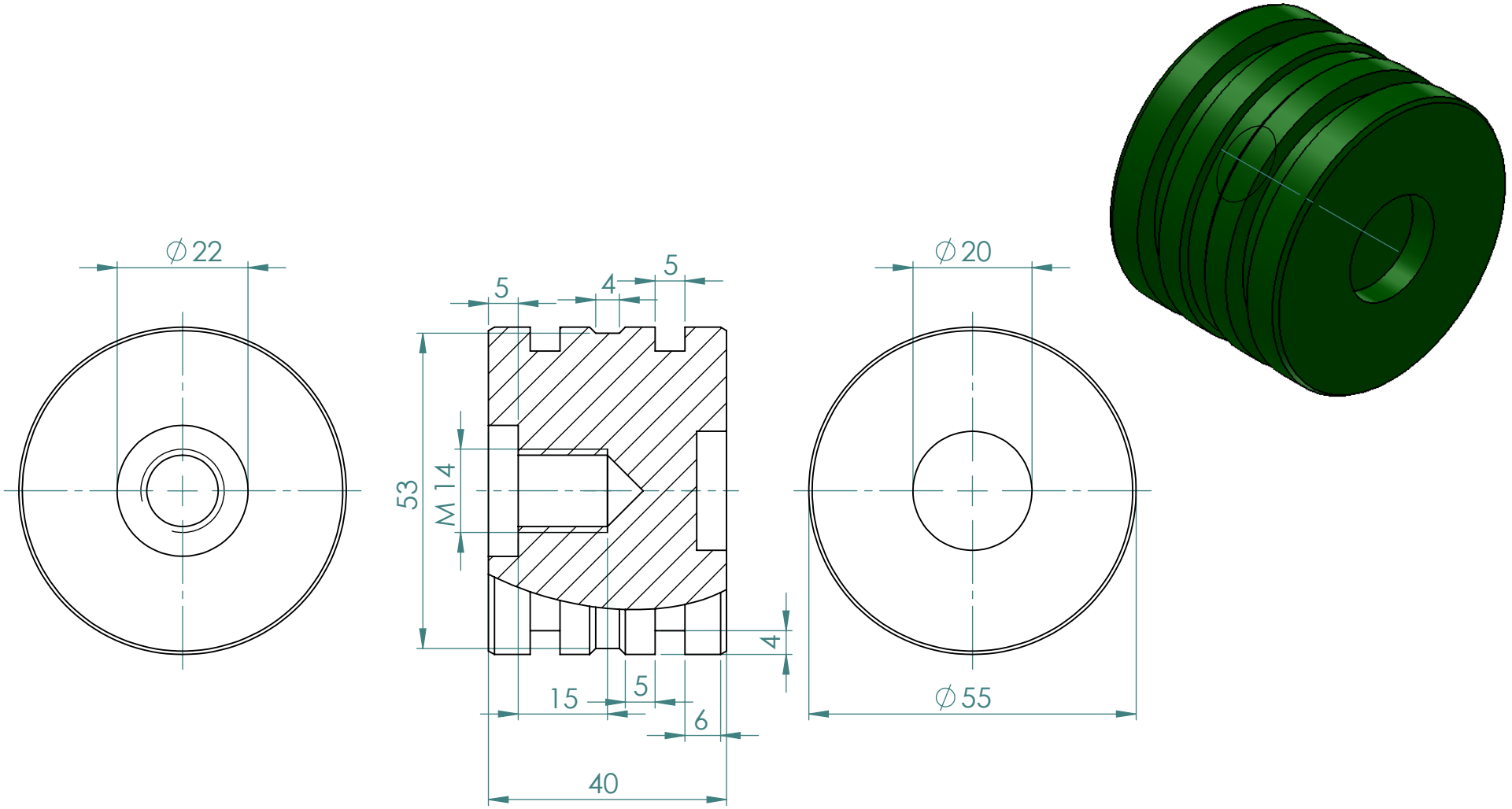
Satuan : mm	Digambar : HABIBI	Peringatan	
Skala : 1:2	NIM : 20130130220		
Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc.		
TEKNIK MESIN	Tutup Bawah Pneumatik	1.2	A4



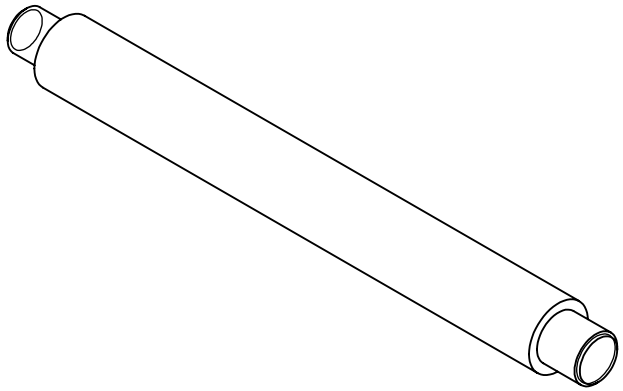


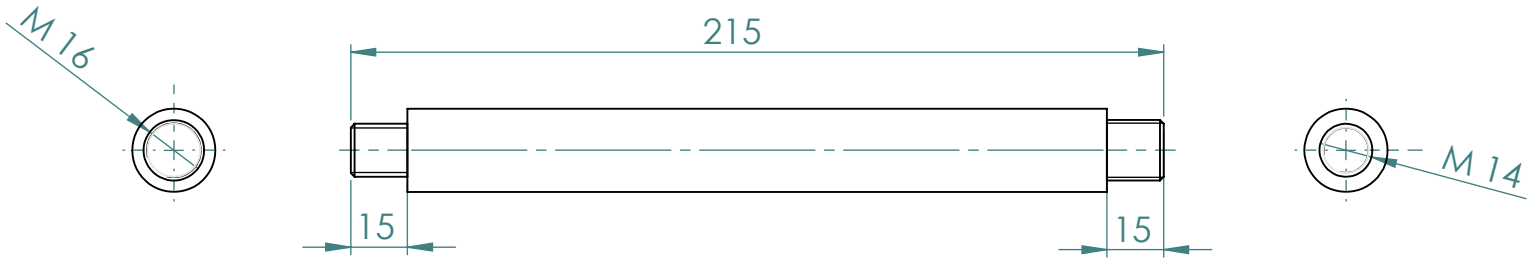


Satuan : mm	Digambar : HABIBI	Peringatan	
Skala : 1:2	NIM : 20130130220		
Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc.		
TEKNIK MESIN	Tutup Atas Pneumatik	1.3	A4

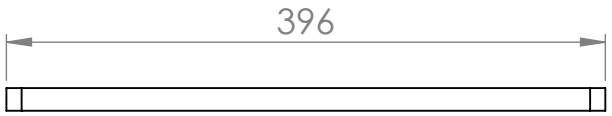


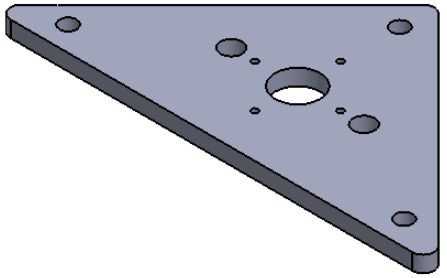
Satuan : mm	Digambar : HABIBI	Peringatan	
Skala : 1:2	NIM : 20130130220		
Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc.		
TEKNIK MESIN	Piston	1.4	A4

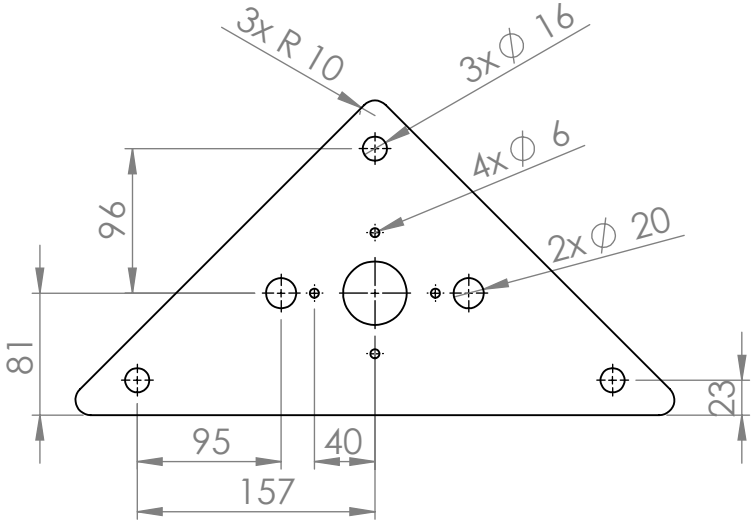


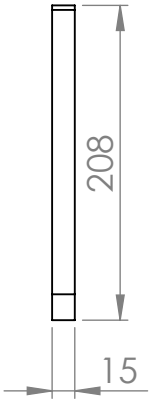


	Satuan : mm	Digambar : HABIBI	Peringatan	
	Skala : 1:2	NIM : 20130130220		
	Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc.		
TEKNIK MESIN	Rod Piston		1.5	A4

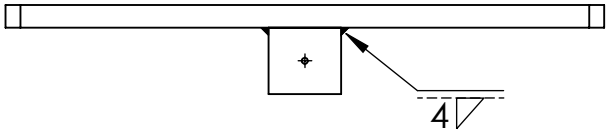


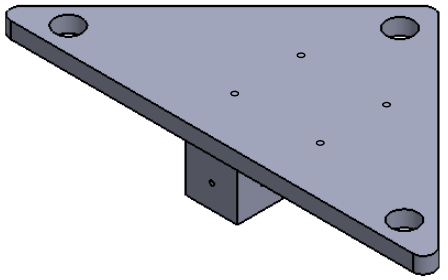


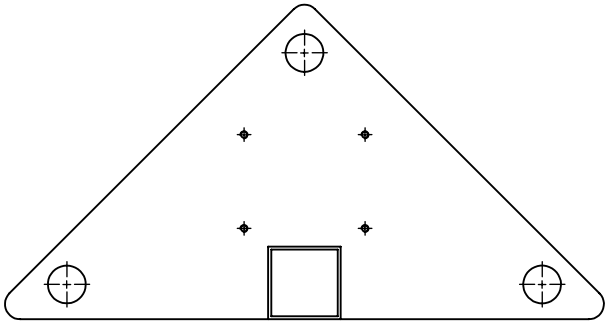


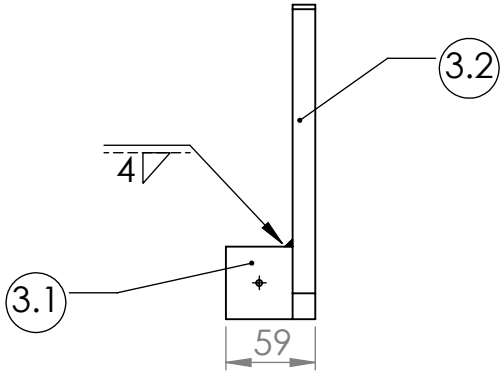


Satuan : mm	Digambar : HABIBI	Peringatan	
Skala : 1:5	NIM : 20130130220		
Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc.		
TEKNIK MESIN	Plat Atas	02	A4





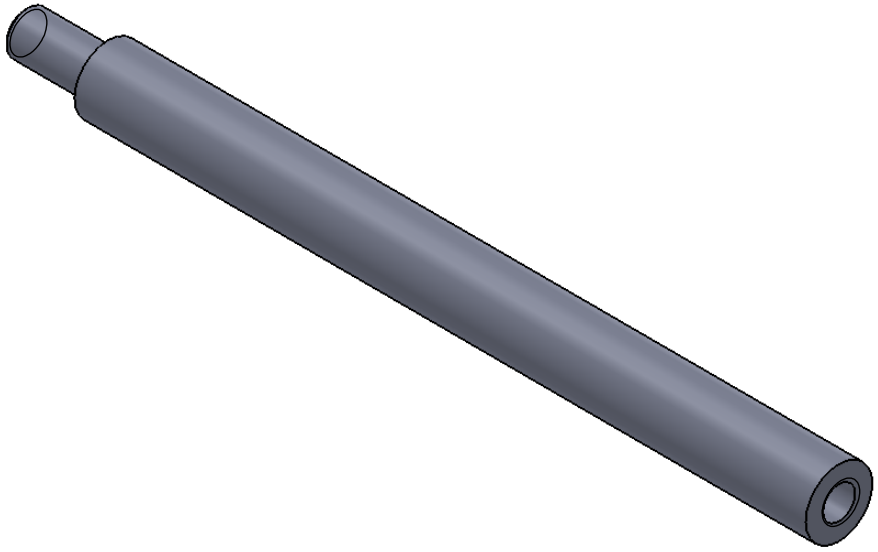


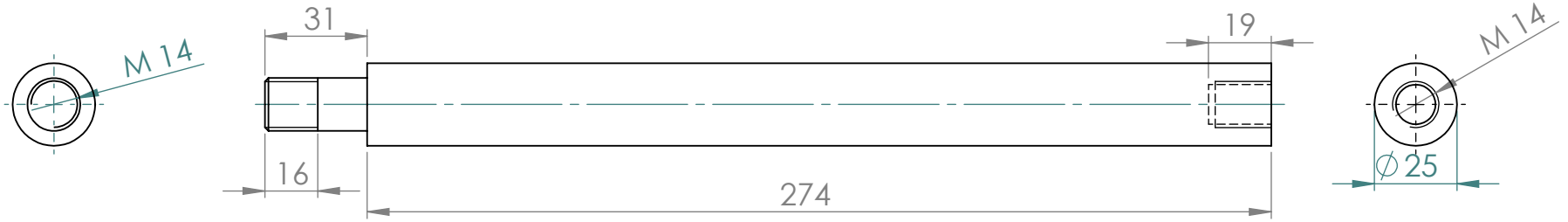


No	Jml	Nama Bagian	Bahan	Standarisasi	Catatan
3.2	1	Plat Heater	Steel		
3.1	1	Box Bimetal	Steel		

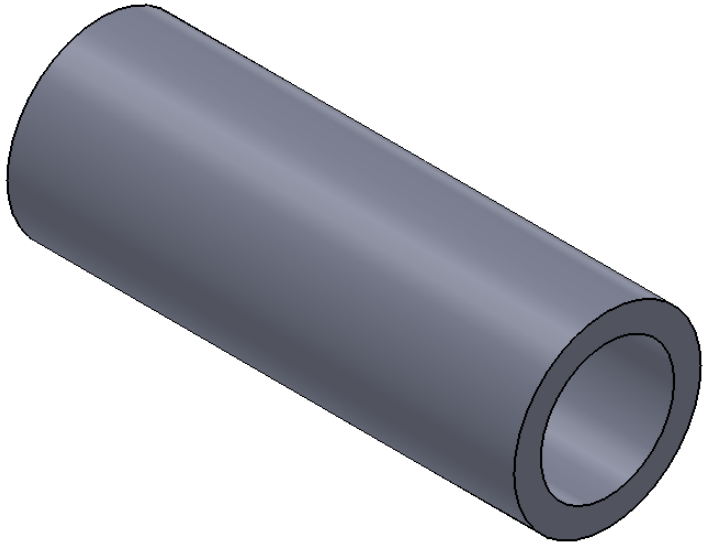
Kekarasan Permukaan μm	Toleransi Ukuran dalam μm		
	Satuan : mm	Digambar : HABIBI	Peringatan
	Skala : 1:5	NIM : 20130130220	
	Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc.	

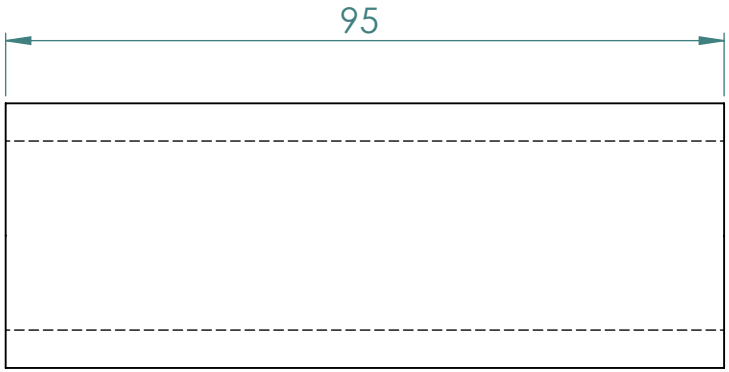
TEKNIK MESIN	Assembly Plat Bawah	03	A4

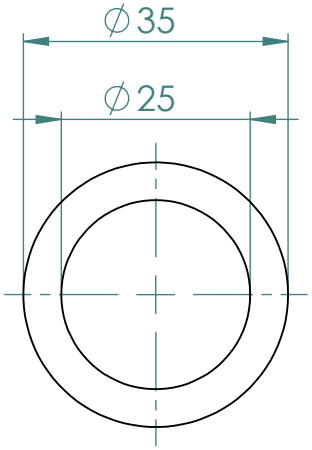




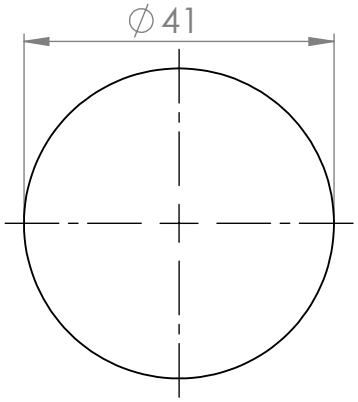
Satuan : mm	Digambar : HABIBI	Peringatan	
Skala : 1: 2	NIM : 20130130220		
Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc.		
TEKNIK MESIN	Rod Kaki	04	A4

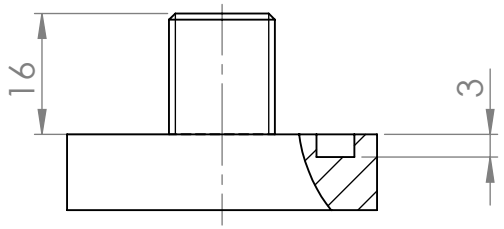


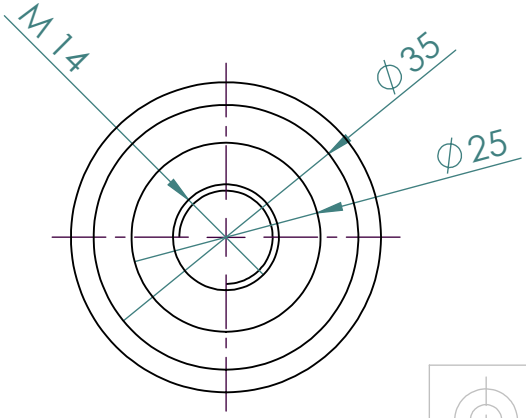


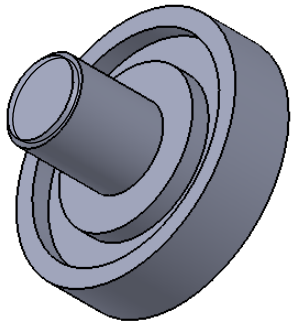


Satuan : mm	Digambar : HABIBI	Peringatan	
Skala : 1:1	NIM : 20130130220		
Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc.		
TEKNIK MESIN	BOSS	05	A4

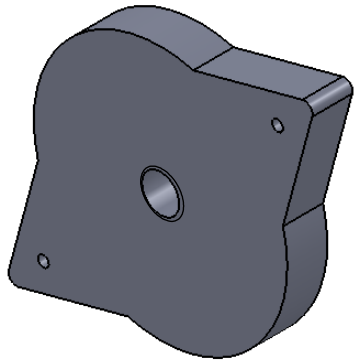


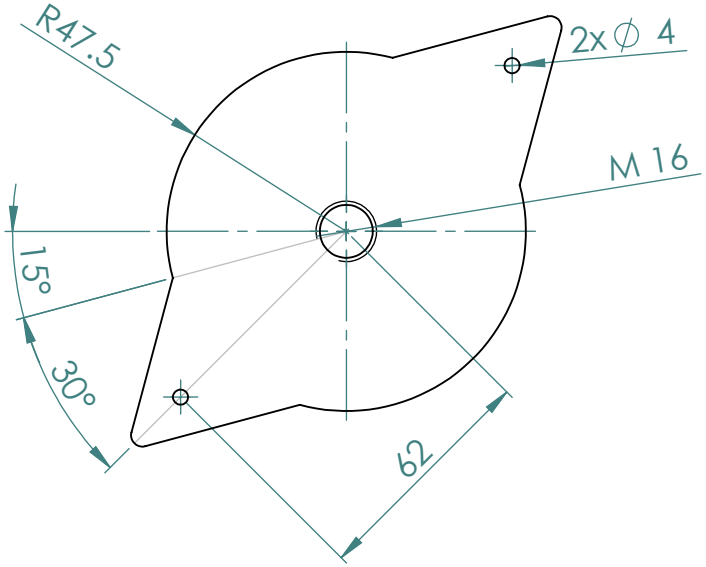


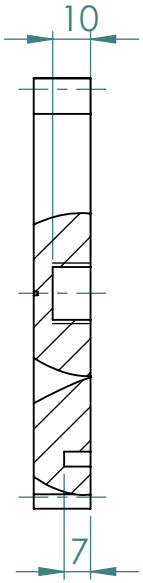




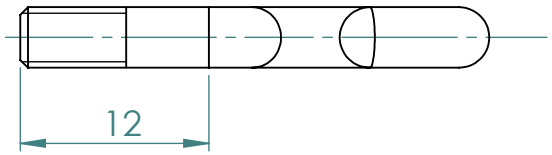
Satuan : mm	Digambar : HABIBI	Peringatan	
Skala : 1:1	NIM : 20130130220		
Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc.		
TEKNIK MESIN	Spull	06	A4

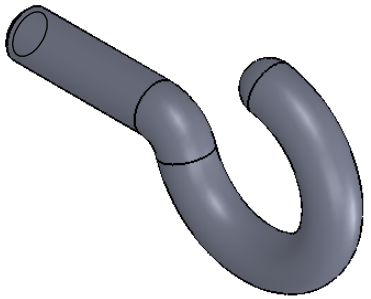


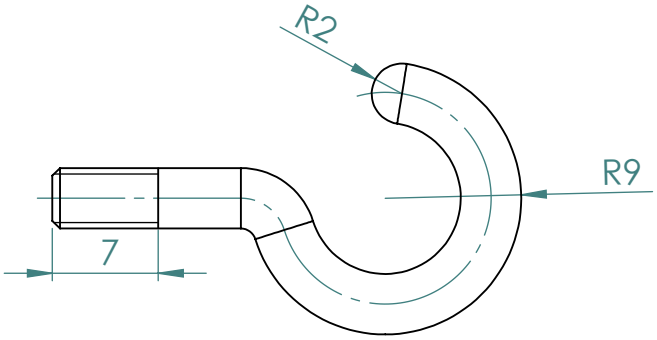


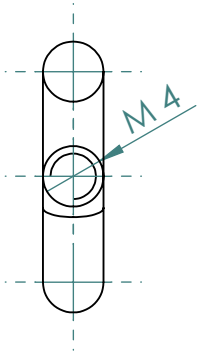


	Satuan : mm	Digambar : HABIBI	Peringatan
	Skala : 1:2	NIM : 20130130220	
	Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc	
TEKNIK MESIN	Plat Tekan	08	A4

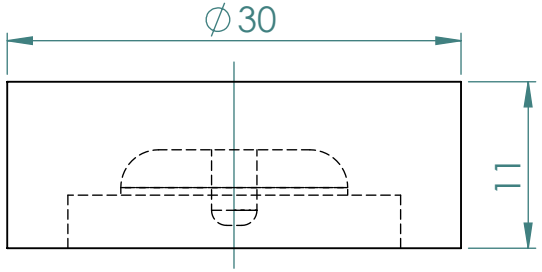


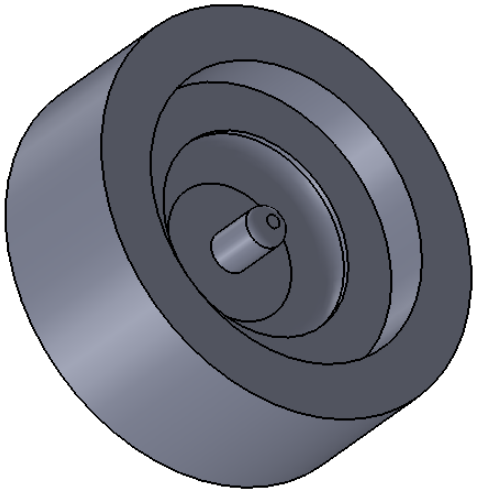


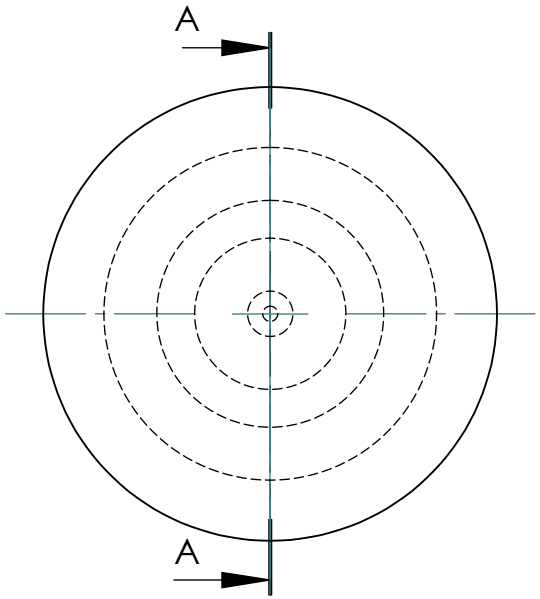


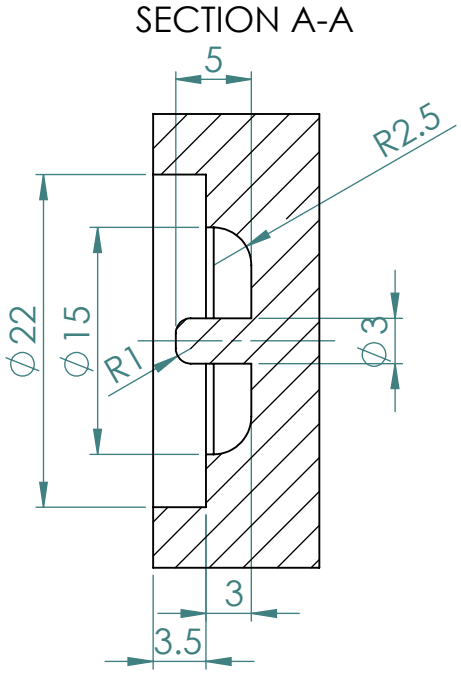


Satuan : mm	Digambar : HABIBI	Peringatan	
Skala : 2:1	NIM : 20130130220		
Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc		
TEKNIK MESIN	Hook	10	A4

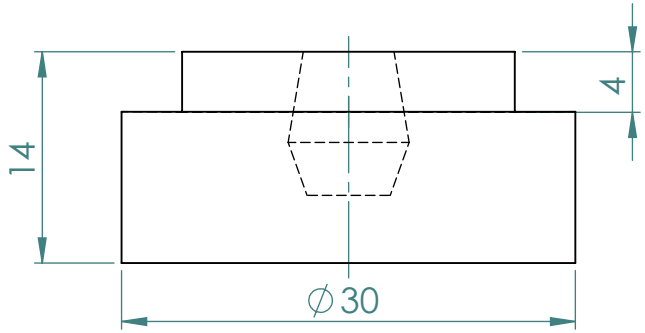


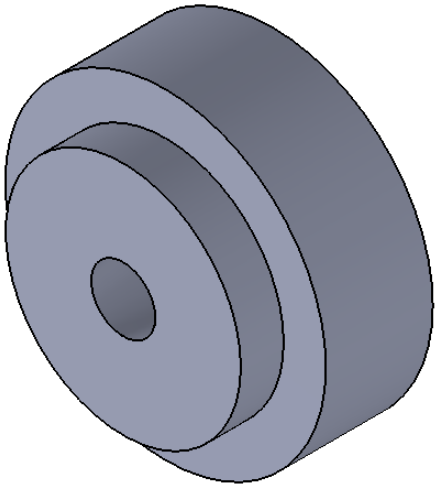


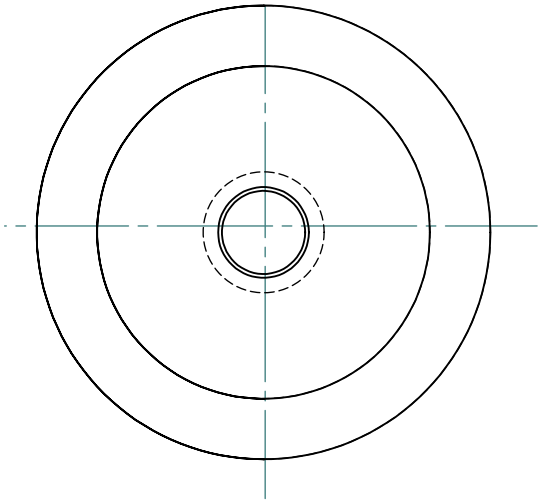


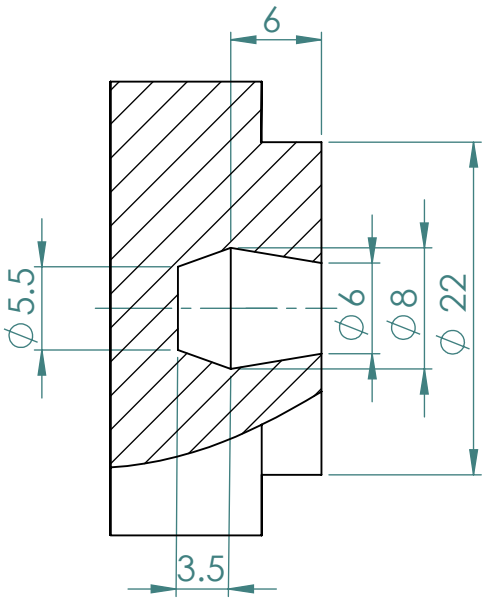


Satuan : mm	Digambar : HABIBI	Peringatan	
Skala : 2:1	NIM : 20130130220		
Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc.		
TEKNIK MESIN	Up Plate Mold	13	A4

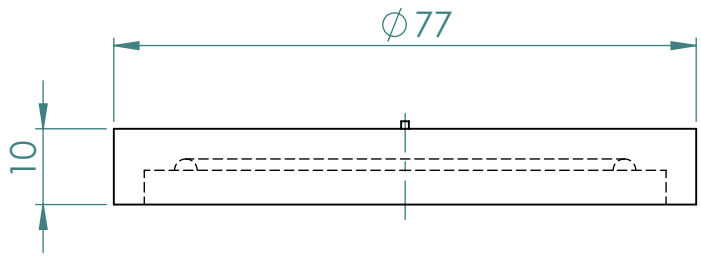


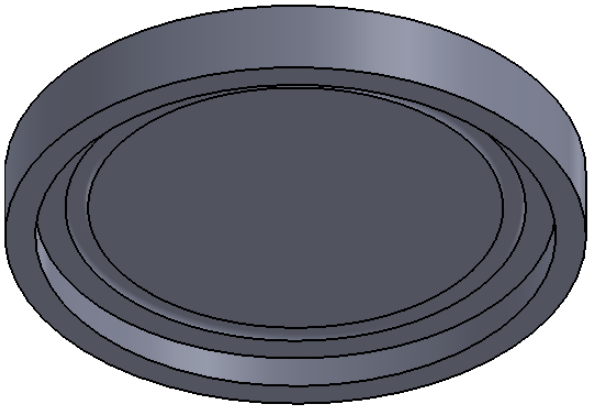


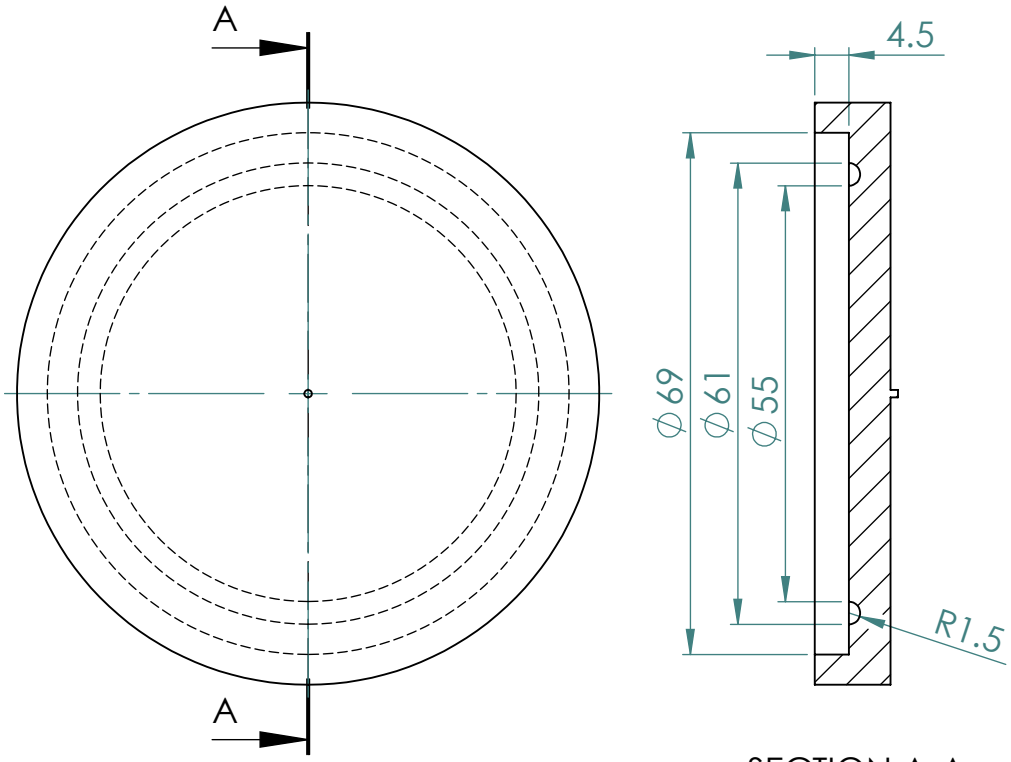




Satuan : mm	Digambar : HABIBI	Peringatan	
Skala : 2:1	NIM : 20130130220		
Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc.		
TEKNIK MESIN	Down Plate Mold	14	A4

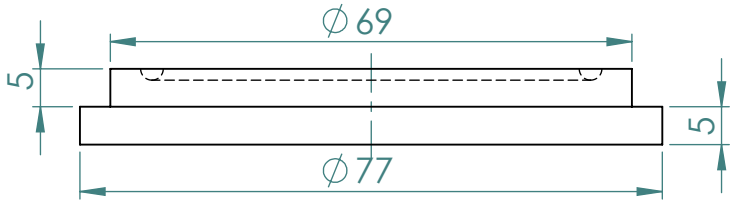


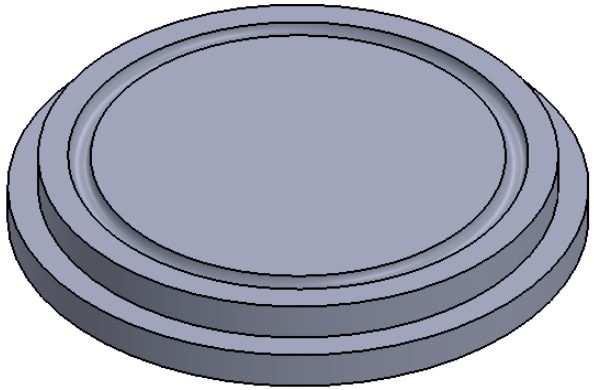


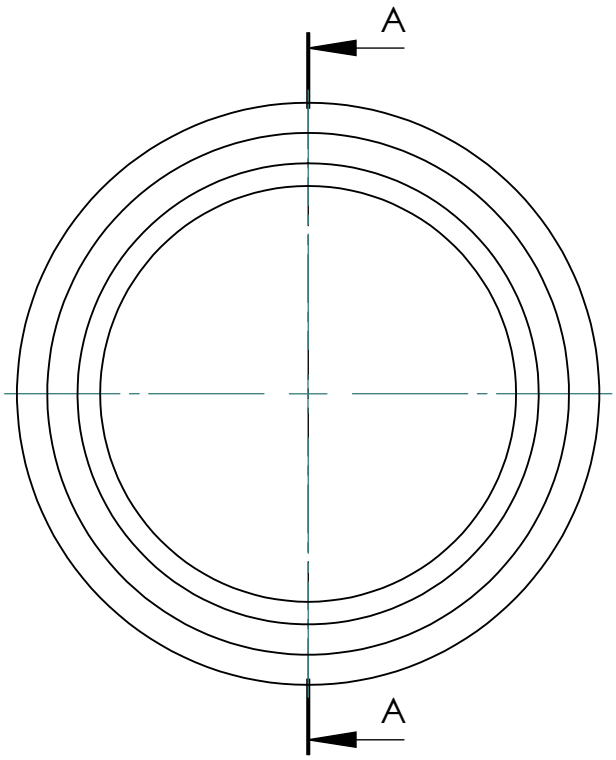


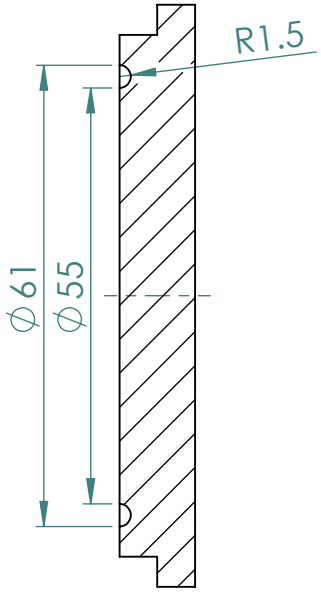
SECTION A-A

Satuan : mm	Digambar : HABIBI	Peringatan	
Skala : 1:1	NIM : 20130130220		
Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc		
TEKNIK MESIN	Mold Male O-Ring	13	A4



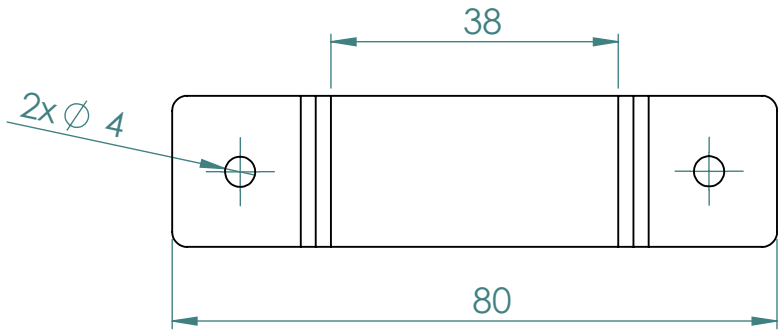


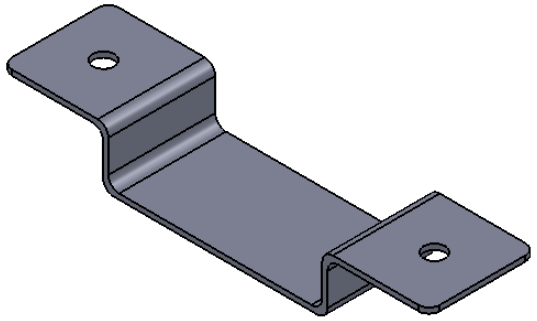


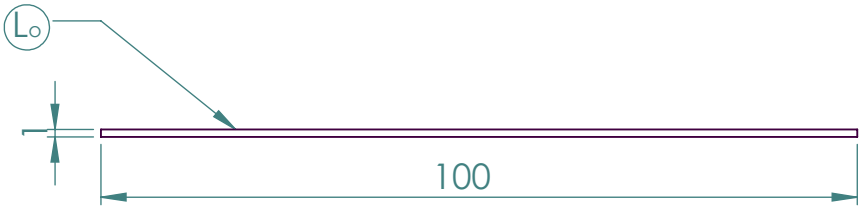


SECTION A-A

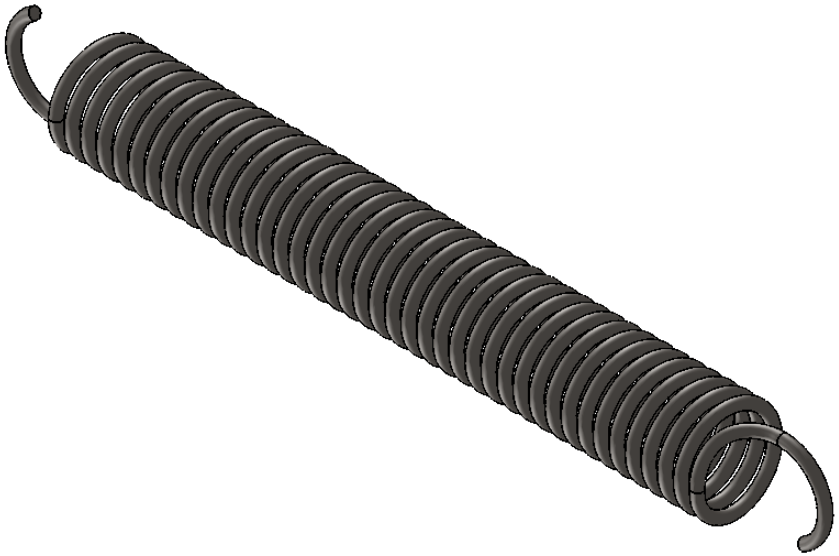
Satuan : mm	Digambar : HABIBI	Peringatan	
Skala : 1:1	NIM : 20130130220		
Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc		
TEKNIK MESIN	Mold Female O-Ring	14	A4

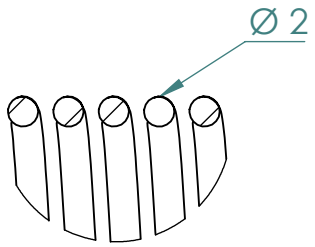




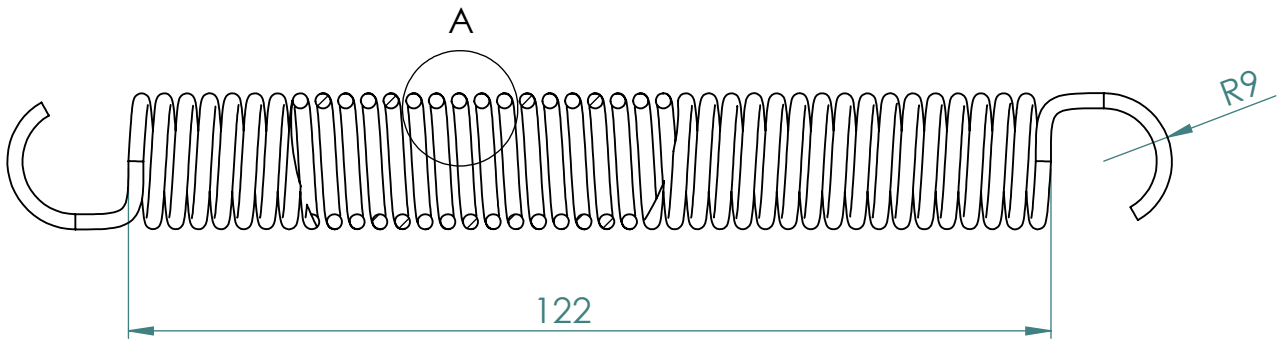


Satuan : mm	Digambar : HABIBI	Peringatan	
Skala : 1:1	NIM : 20130130220		
Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc.		
TEKNIK MESIN	Klem	16	A4



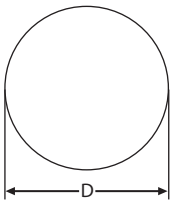


DETAIL A
SCALE 2 : 1



Satuan : mm	Digambar : HABIBI	Peringatan	
Skala : 1:1	NIM : 20130130220		
Tanggal : 17-08-17	Dilihat : Cahyo B. S.T., M.Sc		
TEKNIK MESIN	Pegas Tarik	22	A4

LAMPIRAN 2



Round Bars

(Metric units)

Section Size	Unit Weight	Cross Section Area
Dia	Mass	Area
mm	kg/m	cm^2
6	0.22	0.28
10	0.62	0.79
12	0.89	1.13
13	1.04	1.33
14	1.21	1.54
16	1.58	2.01
18	2.00	2.55
19	2.23	2.04
20	2.47	3.14
22	2.98	3.80
24	3.55	4.52
25	3.85	4.91
26	4.17	5.31
28	4.83	6.16
29	5.19	6.61
30	5.55	7.07
32	6.31	8.04
35	7.55	9.62
38	8.90	11.34
44	11.90	15.21
50	15.40	19.63
65	26.00	33.18
75	34.70	44.18
90	49.90	63.62
100	61.70	78.54
125	96.30	122.70
150	139.00	176.70
200	247.00	314.20

Material Spec:

EN10025 S275JR
BS4360 Gr43A
JIS G3101 SS400
S20C
S45C

API Line Pipes/ General Data
Seamless and Welded Steel Pipes

Nom. Size	O.D.	Schedule 10		Schedule 20		Schedule 30		Standard (P.E.)		Schedule 40		Schedule 60		Extra Strong		Schedule 80		Schedule 100		Schedule 120		Schedule 140		Schedule 160		XX Strong	
		Wall	Lbs/Ft	Wall	Lbs/Ft	Wall	Lbs/Ft	Wall	Lbs/Ft	Wall	Lbs/Ft	Wall	Lbs/Ft	Wall	Lbs/Ft	Wall	Lbs/Ft	Wall	Lbs/Ft	Wall	Lbs/Ft	Wall	Lbs/Ft	Wall	Lbs/Ft	Wall	Lbs/Ft
1/8	0.405							0.068	0.24	0.068	0.24			0.095	0.31	0.095	0.31										
1/4	0.540							0.088	0.42	0.088	0.42			0.119	0.54	0.119	0.54										
3/8	0.657							0.091	0.57	0.091	0.57			0.126	0.74	0.126	0.74										
1/2	0.840							0.109	0.85	0.109	0.85			0.147	1.09	0.147	1.09							0.188	1.31	0.294	1.71
3/4	1.050							0.113	1.13	0.113	1.13			0.154	1.47	0.154	1.47							0.219	1.94	0.308	2.44
1	1.032							0.133	1.68	0.133	1.68			0.179	2.17	0.179	2.17							0.250	2.84	0.358	3.66
1-1/4	1.660							0.140	2.27	0.140	2.27			0.191	3.00	0.191	3.00							0.250	3.76	0.382	5.21
1-1/2	1.900							0.145	2.72	0.145	2.72			0.200	3.63	0.200	3.63							0.281	4.86	0.400	6.41
2	2.375							0.154	3.65	0.154	3.65			0.218	5.02	0.218	5.02							0.344	7.46	0.436	9.03
2-1/2	2.875							0.203	5.79	0.203	5.79			0.276	7.66	0.276	7.66							0.375	10.01	0.552	13.69
3	3.500							0.216	7.58	0.216	7.58			0.300	10.25	0.300	10.25							0.438	14.32	0.600	18.58
3-1/2	4.000							0.226	9.11	0.226	9.11			0.318	12.50	0.318	12.50									0.636	22.85
4	4.500							0.237	10.79	0.237	10.79			0.337	14.98	0.337	14.98			0.438	19.00			0.531	22.51	0.674	27.54
5	5.563							0.258	14.62	0.258	14.62			0.375	20.78	0.375	20.78			0.500	27.04			0.625	32.96	0.750	38.55
6	6.625							0.280	18.97	0.280	18.97			0.432	28.57	0.432	28.57			0.562	36.39			0.719	45.35	0.864	53.16
8	8.625			0.250	22.36	0.277	24.70	0.322	28.55	0.322	28.55	0.406	35.64	0.500	43.39	0.500	43.39	0.594	50.95	0.719	60.71	0.812	67.76	0.906	74.69	0.875	72.42
10	10.750			0.250	28.04	0.307	34.24	0.365	40.48	0.365	40.48	0.500	54.74	0.500	54.74	0.594	64.43	0.719	77.03	0.844	89.29	1.000	104.13	1.125	115.64	1.000	104.13
12	12.750			0.250	33.38	0.330	43.77	0.375	49.56	0.406	53.52	0.562	73.15	0.500	65.24	0.688	88.63	0.844	107.32	1.000	125.49	1.125	139.67	1.312	160.27	1.000	125.49
14	14.000	0.250	36.71	0.312	45.61	0.375	54.57	0.375	54.57	0.438	63.44	0.594	85.05	0.500	72.09	0.750	106.13	0.938	130.85	1.094	150.79	1.250	170.21	1.406	189.11		
16	16.000	0.250	42.05	0.312	52.27	0.375	62.58	0.375	62.58	0.500	82.77	0.656	107.50	0.500	82.77	0.844	136.61	1.031	164.82	1.219	192.43	1.438	223.64	1.594	245.25		
18	18.000	0.250	47.39	0.312	58.94	0.438	82.15	0.375	70.59	0.562	104.67	0.750	138.17	0.500	93.45	0.938	170.92	1.156	207.96	1.375	244.14	1.562	274.22	1.781	308.55		
20	20.000	0.250	52.73	0.375	78.60	0.500	104.13	0.375	78.60	0.594	123.11	0.812	166.40	0.500	104.13	1.031	208.87	1.281	256.19	1.500	296.37	1.750	341.10	1.969	379.14		
22	22.000	0.250	58.07	0.375	86.61	0.500	114.81	0.375	86.61			0.875	197.41	0.500	114.81	1.125	250.81	1.375	302.88	1.625	353.61	1.875	403.01	2.125	451.07		
24	24.000	0.250	63.41	0.375	94.62	0.562	140.68	0.375	94.62	0.688	171.29	0.969	238.35	0.500	125.49	1.219	296.53	1.531	367.45	1.812	429.50	2.062	483.24	2.344	542.09		
26	26.000	0.312	85.60	0.500	136.17			0.375	102.63					0.500	136.17												
28	28.000	0.312	92.41	0.500	146.85	0.625	182.73	0.375	110.64					0.500	146.83												
30	30.000	0.312	98.93	0.500	157.53	0.625	196.08	0.375	118.65					0.500	157.53												
32	32.000	0.312	105.59	0.500	168.21	0.625	209.43	0.375	126.66	0.688	229.92			0.500	168.21												
34	34.000	0.312	112.25	0.500	178.89	0.625	222.73	0.375	134.67	0.688	244.77			0.500	178.89												
36	36.000	0.312	118.92	0.500	189.57	0.625	236.13	0.375	142.68	0.750	282.35			0.500	189.57												

Plates

Metric units (7.85 kg/mm m^2 - 0.7293 kg/mm ft^2)

Thickness	Unit Weight	Width x Length, ft					
t	M	4 x 8	5 x 10	5 x 20	6x20	8 x 20	8 x 30
mm	kg	32	50	100	120	160	240
1.2	0.88	28.00	-	-	-	-	-
1.5	1.09	35.00	-	-	-	-	-
1.6	1.17	37.34	-	-	-	-	-
2.0	1.46	46.67	-	-	-	-	-
2.3	1.68	53.67	-	-	-	-	-
2.5	1.82	58.34	-	-	-	-	-
3.0	2.19	70.00	109.38	-	-	-	-
4.0	2.91	93.34	145.84	292.00	-	-	-
4.5	3.28	105.00	164.07	328.14	-	-	-
5.0	3.65	116.67	182.30	364.60	-	-	-
6	4.38	140.01	218.76	437.52	525.02	700.03	1,050.05
7	5.11	163.34	255.22	510.44	612.53	816.70	1,225.06
8	5.83	186.68	291.68	583.36	700.03	933.38	1,400.06
9	6.56	210.01	328.14	656.28	787.54	1,050.05	1,575.07
10	7.29	233.34	364.60	729.20	875.04	1,166.72	1,750.08
11	8.02	256.68	401.06	802.12	962.54	1,283.39	1,925.09
12	8.75	280.01	437.52	875.04	1,050.05	1,400.06	2,100.10
15	10.94	350.02	546.90	1,093.80	1,312.56	1,750.08	2,625.12
16	11.67	373.35	583.36	1,166.72	1,400.06	1,866.75	2,800.13
17	12.40	396.68	619.82	1,239.64	1,487.57	1,983.42	2,975.14
18	13.13	420.02	656.28	1,312.56	1,575.07	2,100.10	3,150.14
19	13.86	443.35	692.74	1,385.48	1,662.58	2,216.77	3,325.15
20	14.59	466.69	729.20	1,458.40	1,750.08	2,333.44	3,500.16
21	15.32	490.02	765.66	1,531.32	1,837.58	2,450.11	3,675.17
22	16.04	513.36	802.12	1,604.24	1,925.09	2,566.78	3,850.18
24	17.50	560.03	875.04	1,750.08	2,100.10	2,800.13	4,200.19
25	18.23	583.36	911.50	1,823.00	2,187.60	2,916.80	4,375.20
26	18.96	606.69	947.96	1,895.92	2,275.10	3,033.47	4,550.21
28	20.42	653.36	1,020.88	2,041.76	2,450.11	3,266.82	4,900.22
30	21.88	700.03	1,093.80	2,187.60	2,625.12	3,500.16	5,250.24
32	23.34	746.70	1,166.72	2,333.44	2,800.13	3,733.50	5,600.26
35	25.52	816.70	1,276.10	2,552.20	3,062.64	4,083.52	6,125.28
36	26.25	840.04	1,312.56	2,625.12	3,150.14	4,200.19	6,300.29
38	27.71	886.71	1,385.48	2,770.96	3,325.15	4,433.54	6,650.30
40	29.17	933.38	1,458.40	2,916.80	3,500.16	4,666.88	7,000.32
44	32.08	1,026.71	1,604.24	3,208.48	3,850.18	5,133.57	7,700.35
45	32.82	1,050.05	1,640.70	3,281.40	3,937.68	5,250.24	7,875.36
50	36.46	1,166.72	1,823.00	3,646.00	4,375.20	5,833.60	8,750.40
55	40.11	1,283.39	2,005.30	4,010.60	4,812.72	6,416.96	9,625.44
57	41.56	1,330.06	2,078.22	4,156.44	4,987.73	6,650.30	9,975.46
60	43.76	1,400.06	2,187.60	4,375.20	5,250.24	7,000.32	10,500.48
65	47.40	1,516.74	2,369.90	4,739.80	5,687.76	7,583.68	11,375.52
70	51.05	1,633.41	2,552.20	5,104.40	6,125.28	8,167.04	12,250.56
75	54.70	1,750.08	2,734.50	5,469.00	6,562.80	8,750.40	13,125.60
80	58.34	1,866.75	2,916.80	5,833.60	7,000.32	9,333.76	14,000.64
90	65.64	2,100.10	3,281.40	6,562.80	7,875.36	10,500.48	15,750.72
100	72.93	2,333.44	3,646.00	7,292.00	8,750.40	11,667.20	17,500.80
110	80.22	2,566.78	4,010.60	8,021.20	9,625.44	12,833.92	19,250.88
120	87.52	2,800.13	4,375.20	8,750.40	10,500.48	14,000.64	21,000.96
130	94.81	3,033.47	4,739.80	9,479.60	11,375.52	15,167.36	22,751.04
140	102.10	3,266.82	5,104.40	10,208.80	12,250.56	16,334.08	24,501.12
150	109.40	3,500.16	5,469.00	10,938.00	13,125.60	17,500.80	26,251.20

Material Spec: EN10025 S275JR
EN10025 S355JR
BS4360 Gr43A
JIS G3101 SS400
EH36

FLAT CROSS-SECTION HEATERS

⅜ and 7/16" (0.95 and 1.1 cm)

ATS/ATU Series

ATU-1267/240 shown smaller than actual size.

ATS-2610/120 shown smaller than actual size.

- **INCOLOY Sheath**
- **575 to 1350 Watts**
- **120 and 240 Volt**
- **26 to 38 W/in²**
- **870°C (1600°F) Maximum SheathTemperature**
- **Straight Elements (Type ATS)**
- **U-Shape Elements (Type ATU)**

APPLICATIONS

- **Clamp-ons**
- **Immersion (Corrosive Liquids, Fry Kettles, etc.)**
- **Low Temperature Air Heating**

FEATURES

Flat-Pressed after triangulation to increase contact surface, improve heat conductivity.

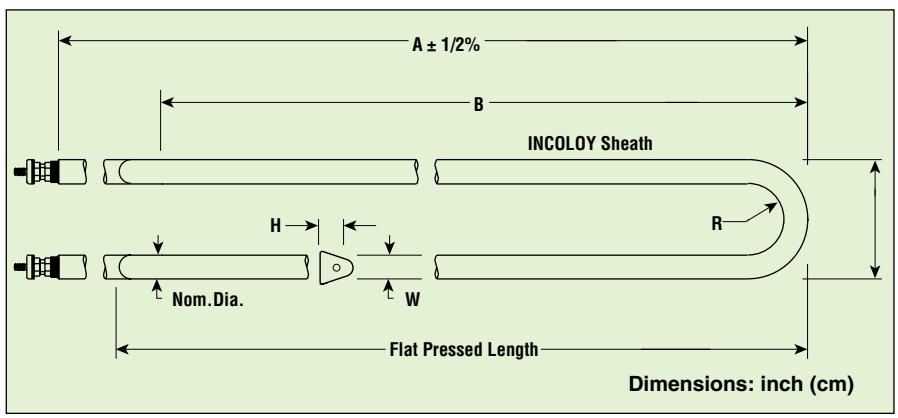
Series Wiring: Two or more elements of equal wattage may be connected in series on line voltages up to 480 volts. For application details see Tubular Heater Overview section online.

Type 3 and 4 Terminals: Type 3 (⅜" dia.) are Heliarc-welded to cold pin. Type 4 (7/16" dia.) are threaded end of cold pin. See terminal detail drawings in the Tubular Heater Overview section online.

Bending:
Generally not recommended for flat-pressed, triangulated elements.

Dimensions: Inches (cm)

Nom. Dia.	W	H	R	F
⅜ (0.95) 7/16 (1.1)	⅜ (0.95) 7/16 (1.1)	5/16 (0.79) ⅜ (0.79)	9/16 (1.4) 21/32 (1.7)	1⅞ (4.7) 2 3/16 (5.5)



Dimensions: inch (cm)

To Order

Nom. Dia. (inch)	Watts	Volts	W/In²	Dimensions: inch (cm) Sheath A	Heated B	INCOLOY Sheath Model No.	Weight (lb)
ATS — Straight							
7/16	1000	120	38	26½ (67)	19⅝ (50)	**ATS-2610/120**	0.8
7/16	900	240	35	26½ (67)	19⅝ (50)	**ATS-2690/240**	0.8
7/16	1000	120	27	33½ (85)	26⅝ (68)	**ATS-3310/120**	1.0
7/16	1200	240	36	33½ (85)	26⅝ (68)	**ATS-3312/240**	1.0
⅜	600	120	35	21⅛ (54)	14⅜ (37)	**ATS-2160/120**	0.6
⅜	575	240	34	21⅛ (54)	14⅜ (37)	**ATS-2157/240**	0.6
⅜	600	120	26	26⅛ (66)	19⅜ (49)	**ATS-2660/120**	0.8
⅜	675	240	29	26⅛ (66)	19⅜ (49)	**ATS-2667/240**	0.8
⅜	1350	240	31	42⅞ (10)	36⅛ (92)	**ATS-4313/240**	1.2
ATU — U-Shape							
7/16	1000	120	38	13 (33)	9½ (24)	**ATU-1310/120**	0.8
7/16	900	240	35	13 (33)	9½ (24)	**ATU-1390/240**	0.8
7/16	1000	120	27	16½ (42)	13 1/16 (33)	**ATU-1610/120**	1.0
7/16	1200	240	36	16½ (42)	13 1/16 (33)	**ATU-1612/240**	1.0
⅜	600	120	35	10½ (27)	7 (18)	**ATU-1060/120**	0.6
⅜	575	240	34	10½ (27)	7 (18)	**ATU-1057/240**	0.6
⅜	600	120	26	12⅞ (33)	9½ (24)	**ATU-1260/120**	0.8
⅜	675	240	29	12⅞ (33)	9½ (24)	**ATU-1267/240**	0.8
⅜	1350	240	31	21¼ (54)	18 (46)	**ATU-2113/240**	1.2

Ordering Examples: ATS-4313/240, *straight element heater 1350 Watt, 240V.*
ATU-1310/120, *u-shape heater, 1000 Watt, 120V.*