

LAMPIRAN



Lampiran dimensi pipa tembaga

Dimensi pipa-pipa tembaga		
Diameter luar, mm	Diameter dalam, mm	
	Jenis K	Jenis L
9,53	7,75	8,00
12,70	10,21	10,92
15,88	13,39	13,84
19,05	16,56	16,92
22,23	18,92	19,94
28,58	25,27	26,04
34,93	31,62	32,13
41,28	37,62	38,23
53,98	49,76	50,42
66,68	61,85	62,21
79,38	73,84	74,80
92,08	85,98	87,00
104,8	97,97	99,19
130,2	122,1	123,8
155,6	145,8	148,5
206,4	192,6	196,2
257,2	240,0	244,5
308,0	287,4	293,8

Lampiran, Konduktivitas Termal Berbagai Bahan Pada 0°C

<i>Konduktivitas termal k</i>		
Bahan	W/m . °C	Btu/h . ft . °F
<u>Logam</u>		
Perak (murni)	410	237
Tembaga (murni)	385	223
Alumunium (murni)	202	117
Nikel (murni)	93	54
Besi (murni)	73	42
Baja karbon, 1% C	43	25
Timbal (murni)	35	20,3
Baja krom-nikel (18% Cr, 8% Ni)	16,3	9,4
<u>Bukan Logam</u>		
Kuarsa (sejajar sumbu)	41,6	24
Magnesit	4,15	2,4
Marmar	2,08-2,94	1,2 - 1,7
Batu pasir	1,83	1,06
Kaca, jendela	0,78	0,45
Kayu maple atau ek	0,17	0,096
Serbuk gergaji	0,059	0,034
Wol kaca	0,038	0,022
<u>Zat cair</u>		
Air-raksa	8,21	4,74
Air	0,556	0,327
Amonia	0,540	0,312
Minyak lumas, SAE 50	0,147	0,085
Freon 12, CCl ₂ F ₂	0,073	0,042
<u>Gas</u>		
Hidrogen	0,175	0,101
Helium	0,141	0,081
Udara	0,024	0,0139
Uap air (jenuh)	0,0206	0,0119
Karbon dioksida	0,0146	0,00844

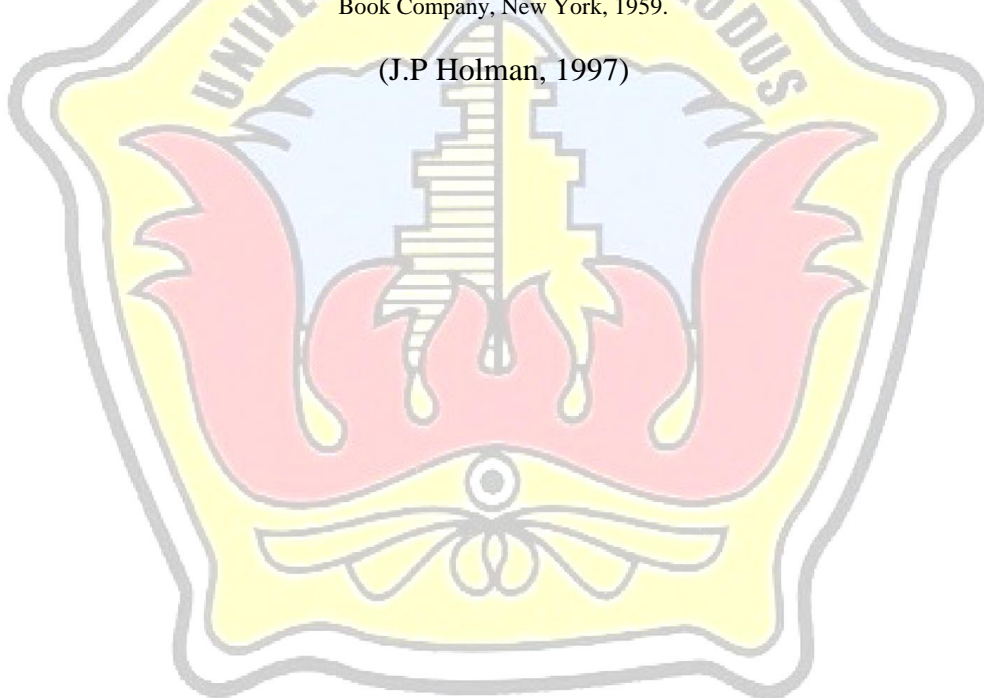
Sifat – sifat Gas pada Tekanan Atmosfer

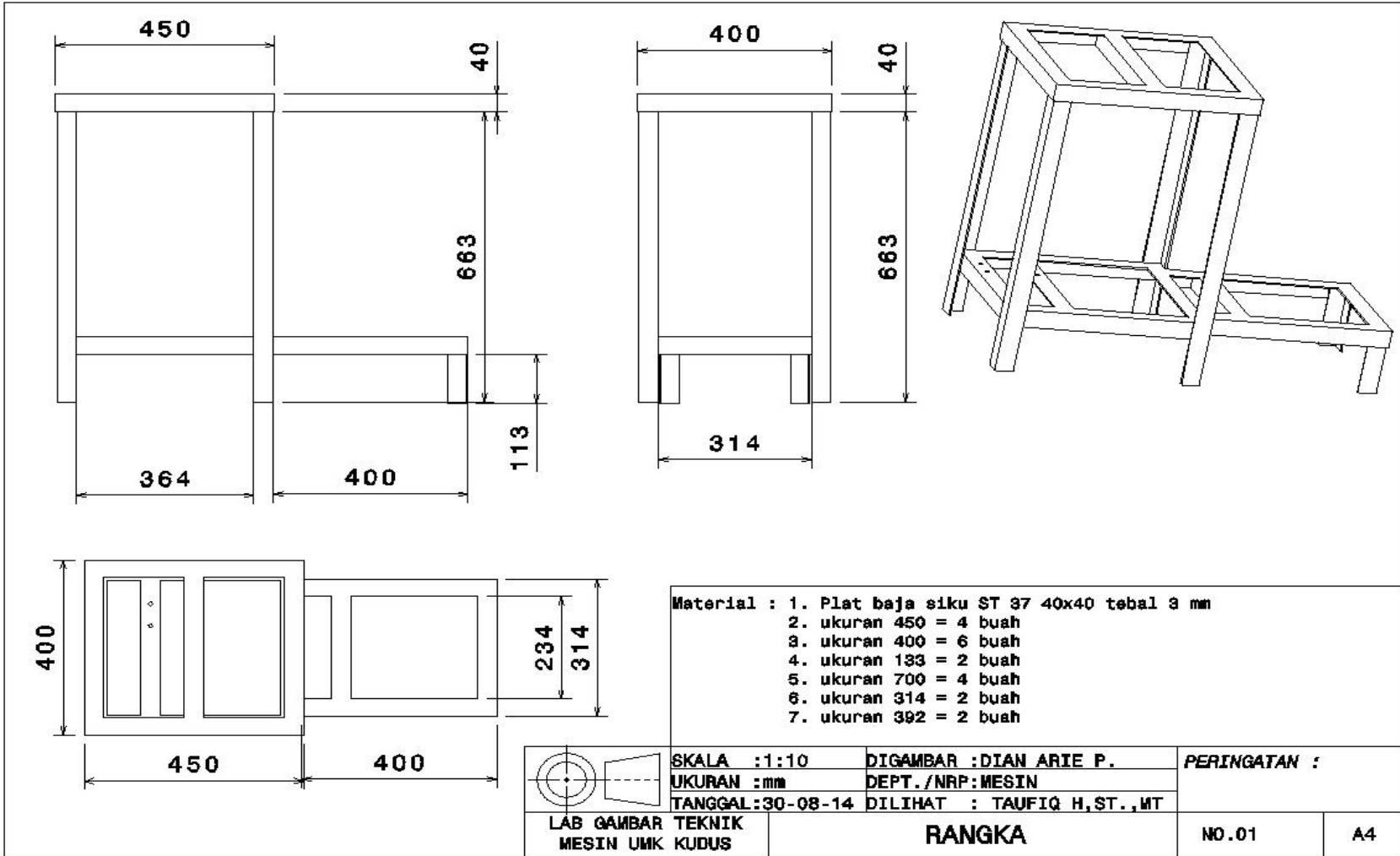
Nilai μ , k , C_p , dan Pr tidak terlalu bergantung pada tekanan dan dapat digunakan untuk rentang tekanan yang cukup luas.

Karbon dioksida							
T, K	ρ kg/m ³	C_p kJ/kg . °C	μ , kg/m . s	ν , m ² /s	k W/m . °C	α , m ² /s	Pr
220	2.4733	0.783	11.105 x 10 ⁻⁶	4.490 x 10 ⁻⁶	0.010805	0.05920 x 10 ⁻⁴	0.818
250	2.1657	0.804	12.590	5.813	0.012884	0.07401	0.793
300	1.7973	0.871	14.958	8.321	0.016572	0.10588	0.770
350	1.5362	0.900	17.205	11.19	0.02047	0.14808	0.755
400	1.3424	0.942	19.32	14.39	0.02461	0.19463	0.738
450	1.1918	0.980	21.34	17.90	0.02897	0.24813	0.721
500	1.0732	1.013	23.26	21.67	0.03352	0.3084	0.702
550	0.9739	1.047	25.08	25.74	0.03821	0.3750	0.685
600	0.8938	1.076	26.83	30.02	0.04311	0.4483	0.668

Adaptasi ke satuan SI dari E. R. G. Eckert dan R. M. Drake, "Heat and Mass Transfer", 2d ed., Mc-Graw-Hill Book Company, New York, 1959.

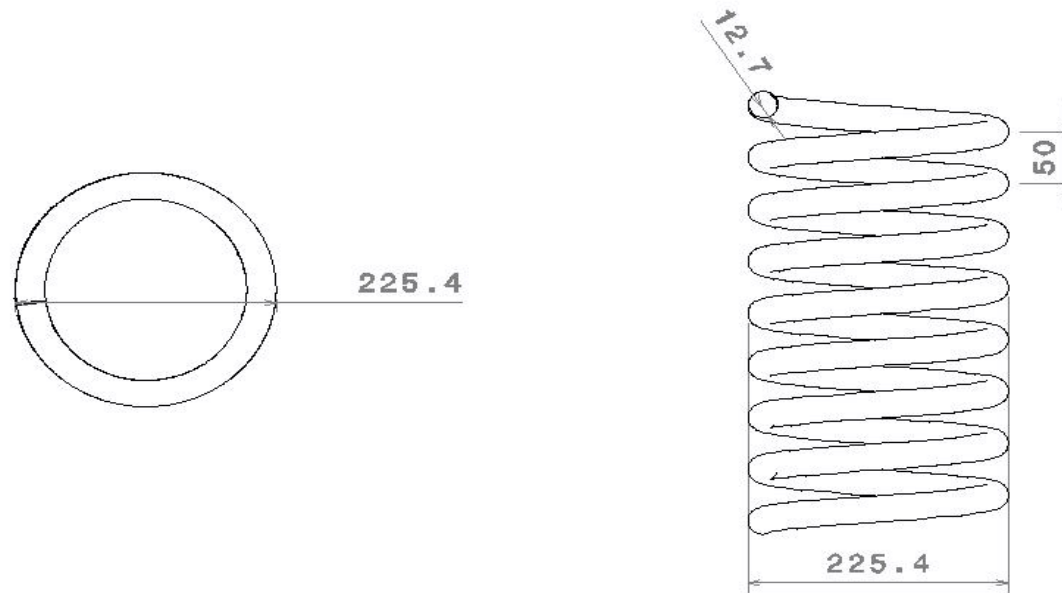
(J.P Holman, 1997)



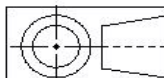


Material : 1. Plat baja siku ST 37 40x40 tebal 3 mm
 2. ukuran 450 = 4 buah
 3. ukuran 400 = 6 buah
 4. ukuran 133 = 2 buah
 5. ukuran 700 = 4 buah
 6. ukuran 314 = 2 buah
 7. ukuran 392 = 2 buah

	SKALA :1:10	DIGAMBAR :DIAN ARIE P.	PERINGATAN :	
	UKURAN :mm	DEPT./NRP: MESIN		
	TANGGAL:30-08-14	DILIHAT : TAUFIQ H,ST.,MT		
LAB GAMBAR TEKNIK MESIN UMK KUDUS	RANGKA		NO.01	A4



- Material :
1. pipa tembaga
 2. diameter pipa ϕ 12,70 mm
 3. panjang 5000 mm
 4. jarak ulir 50 mm
 5. diameter ϕ 225,4



SKALA : 1:5

DIGAMBAR : DIAN ARIE P.

PERINGATAN :

UKURAN : mm

DEPT./NRP: MESIN

TANGGAL: 30-08-14

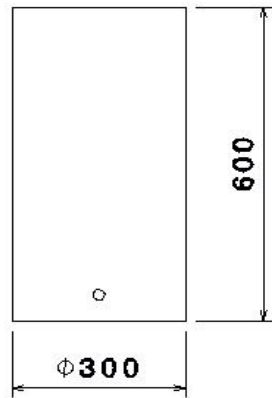
DILIHAT : TAUFIQ H, ST., MT

LAB GAMBAR TEKNIK
MESIN UMK KUDUS

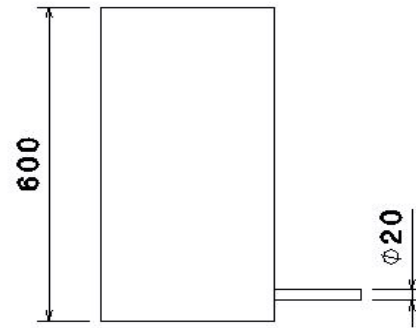
PIPA SPIRAL

NO.02

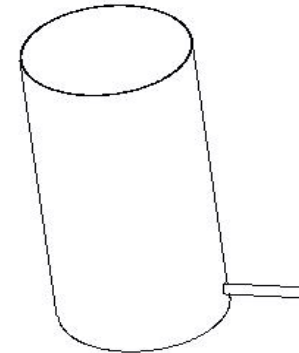
A4



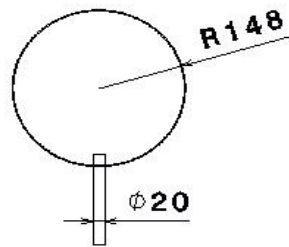
Front view
Scale: 1:10



Left view
Scale: 1:10

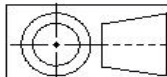


Isometric view
Scale: 1:10



Top view
Scale: 1:10

- Material :
1. plat stainless 201
 2. tebal 2 mm
 3. diameter ϕ 300 mm
 4. panjang 600 mm
 5. pipa stalis ϕ 20 mm



SKALA : 1:10

DIGAMBAR : DIAN ARIE P.

PERINGATAN :

UKURAN : mm

DEPT./NRP: MESIN

TANGGAL: 30-08-14

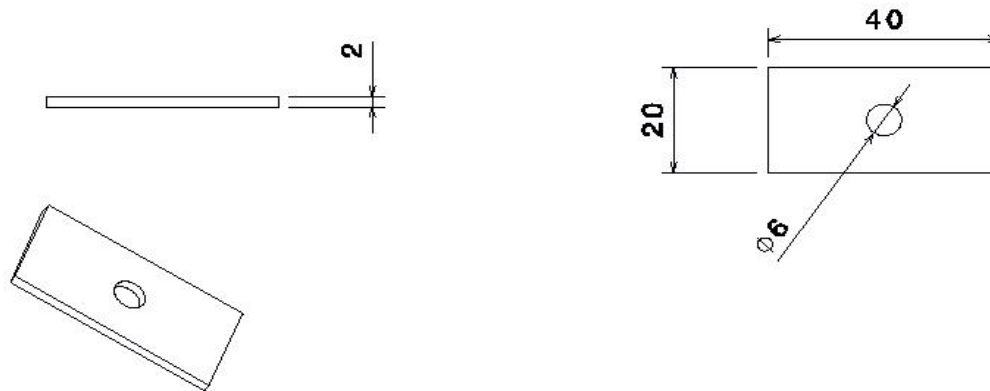
DILIHAT : TAUFIQ H, ST., MT

LAB GAMBAR TEKNIK
MESIN UMK KUDUS

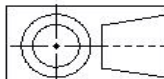
TABUNG KONDENSOR

NO.03

A4



Material : 1. plat stainless 201
 2. panjang 40 mm
 3. lebar 20 mm
 4. ϕ 6 mm



SKALA : 1:10

DI GAMBAR : DIAN ARIE P.

PERINGATAN :

UKURAN : mm

DEPT./NRP : MESIN

TANGGAL: 20-8-'14

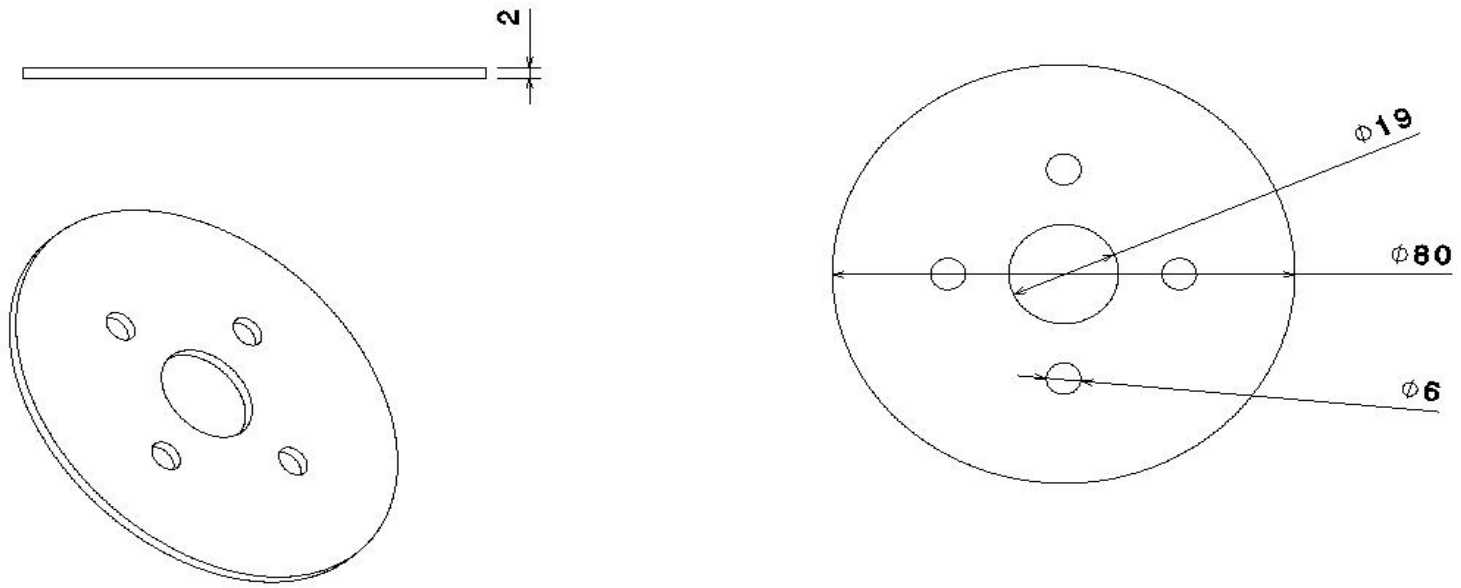
DILIHAT : TAUFIQ H, ST., MT

LAB GAMBAR TEKNIK
 MESIN UMK KUDUS

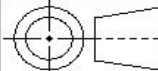
PLAT SEKAT

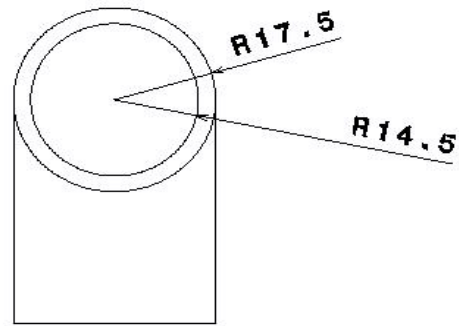
NO.04

A4

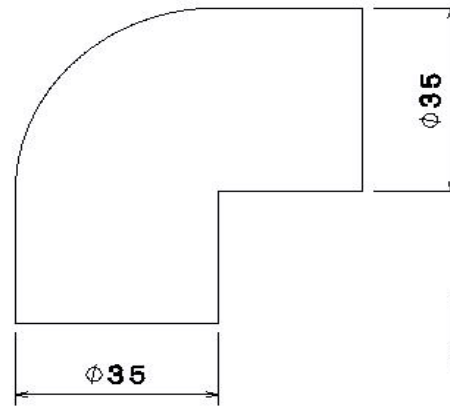


Material : 1. plat stainless 201
 2. tebal 2 mm dan ϕ 80 mm
 3. diameter ϕ 6 dan ϕ 19

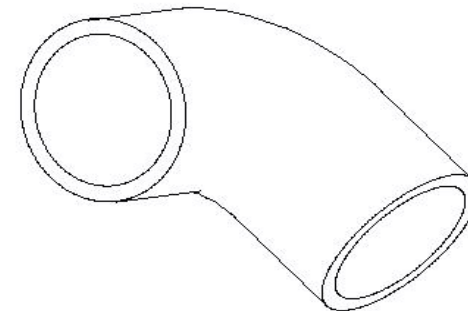
	SKALA : 1:10	DI GAMBAR : DIAN ARIE P.	PERINGATAN :	
	UKURAN : mm	DEPT./NRP: MESIN		
	TANGGAL: 20-8-'14	DILIHAT : TAUFIQ H, ST., MT	NO.05	A4
LAB GAMBAR TEKNIK MESIN UMK KUDUS		FLANGE		



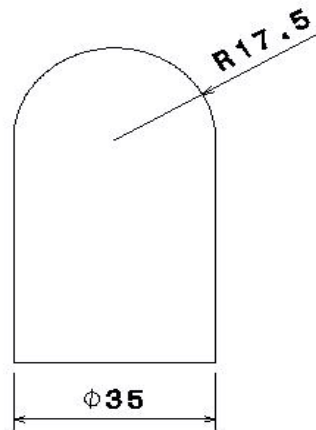
Front view
Scale: 1:1



Left view
Scale: 1:1

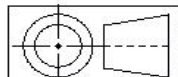


Isometric view
Scale: 1:1



Top view
Scale: 1:1

Material : 1. PVC



SKALA : 1:1

DIGAMBAR : DIAN ARIE P.

PERINGATAN :

UKURAN : mm

DEPT./NRP: MESIN

TANGGAL: 30-08-14

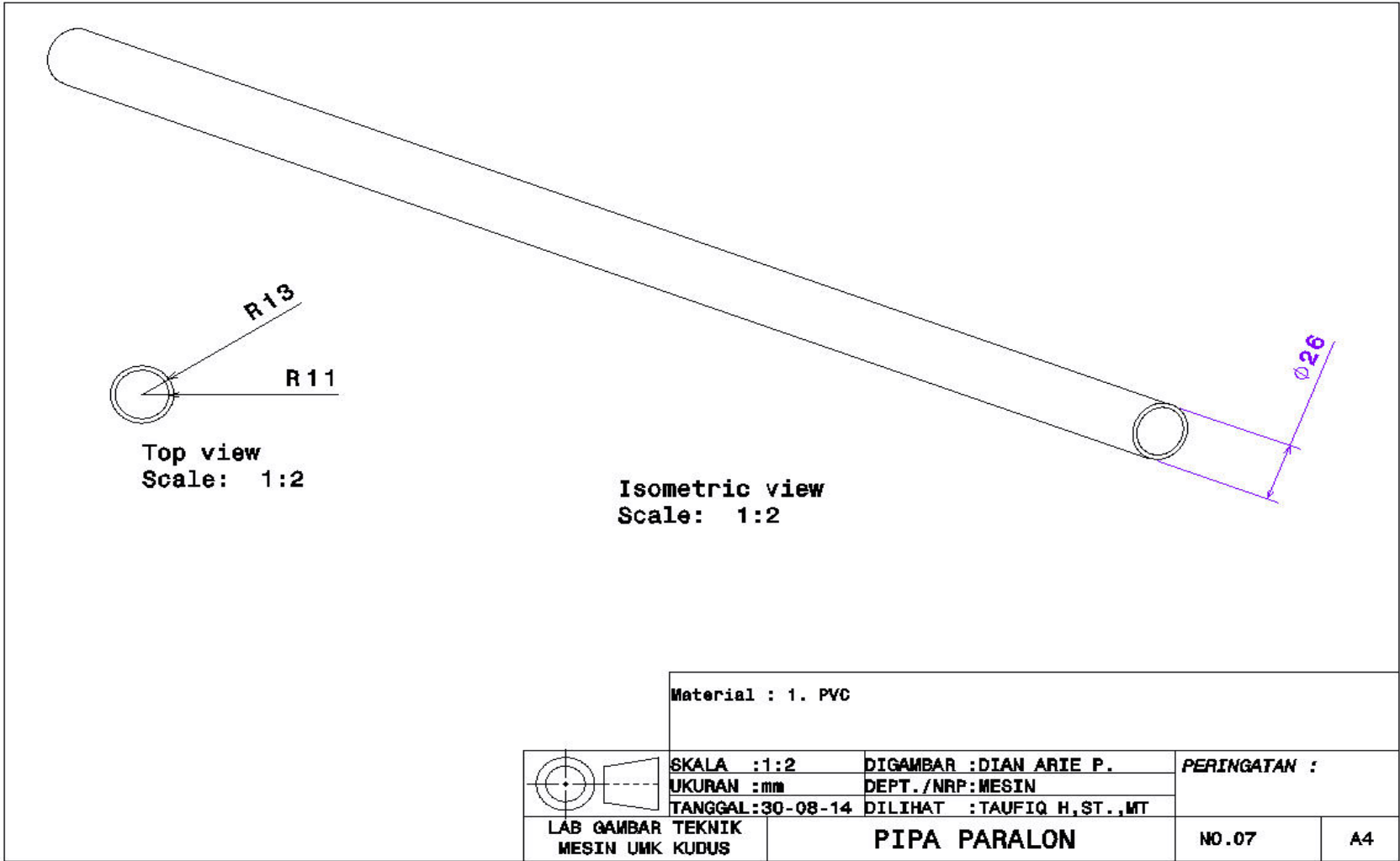
DILIHAT : TAUFIQ H, ST., MT

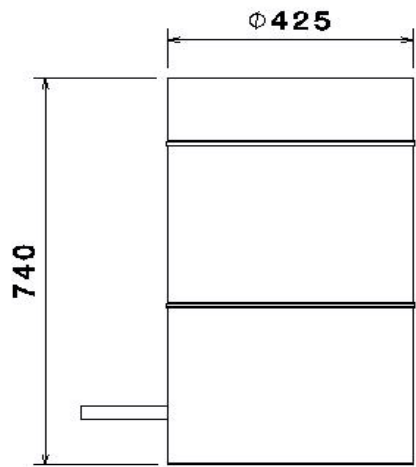
LAB GAMBAR TEKNIK
MESIN UMK KUDUS

KENI PARALON

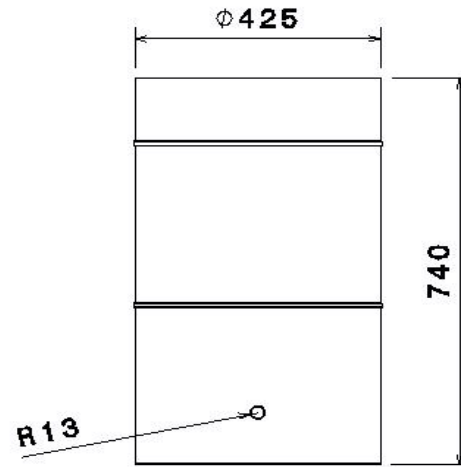
NO.06

A4

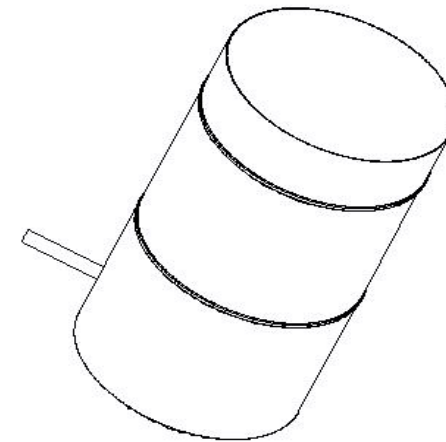




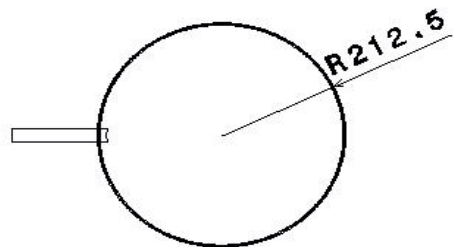
Front view
Scale: 1:10



Left view
Scale: 1:10

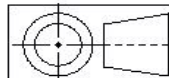


Isometric view
Scale: 1:10



Top view
Scale: 1:10

Material : 1. tangki galvanic



SKALA :1:10

DIGAMBAR :DIAN ARIE P.

PERINGATAN :

UKURAN :mm

DEPT./NRP:MESIN

TANGGAL:30-08-14

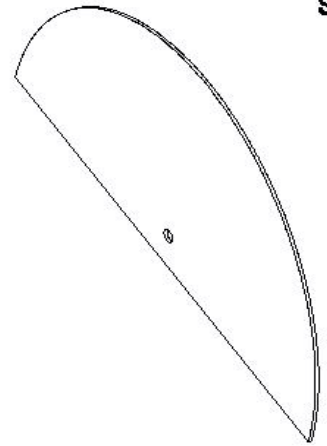
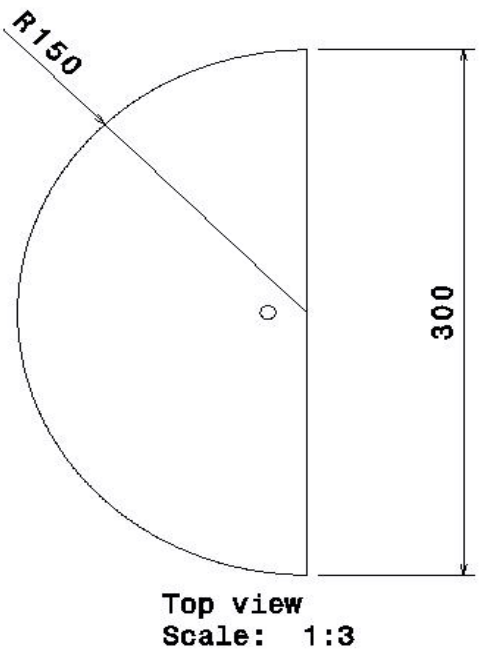
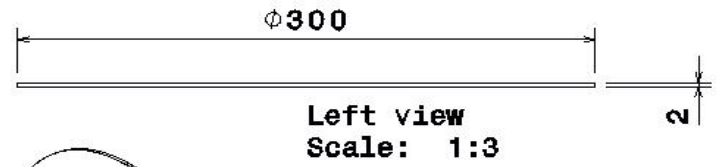
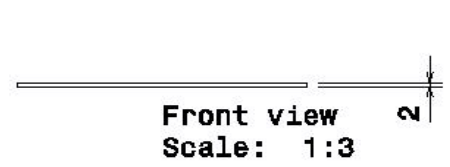
DILIHAT : TAUFIQ H,ST.,MT

LAB GAMBAR TEKNIK
MESIN UMK KUDUS

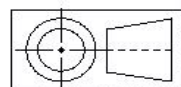
TABUNG TANGKI AIR

NO.08

A4



Material : 1. stainless steel 201



LAB GAMBAR TEKNIK
MESIN UMK KUDUS

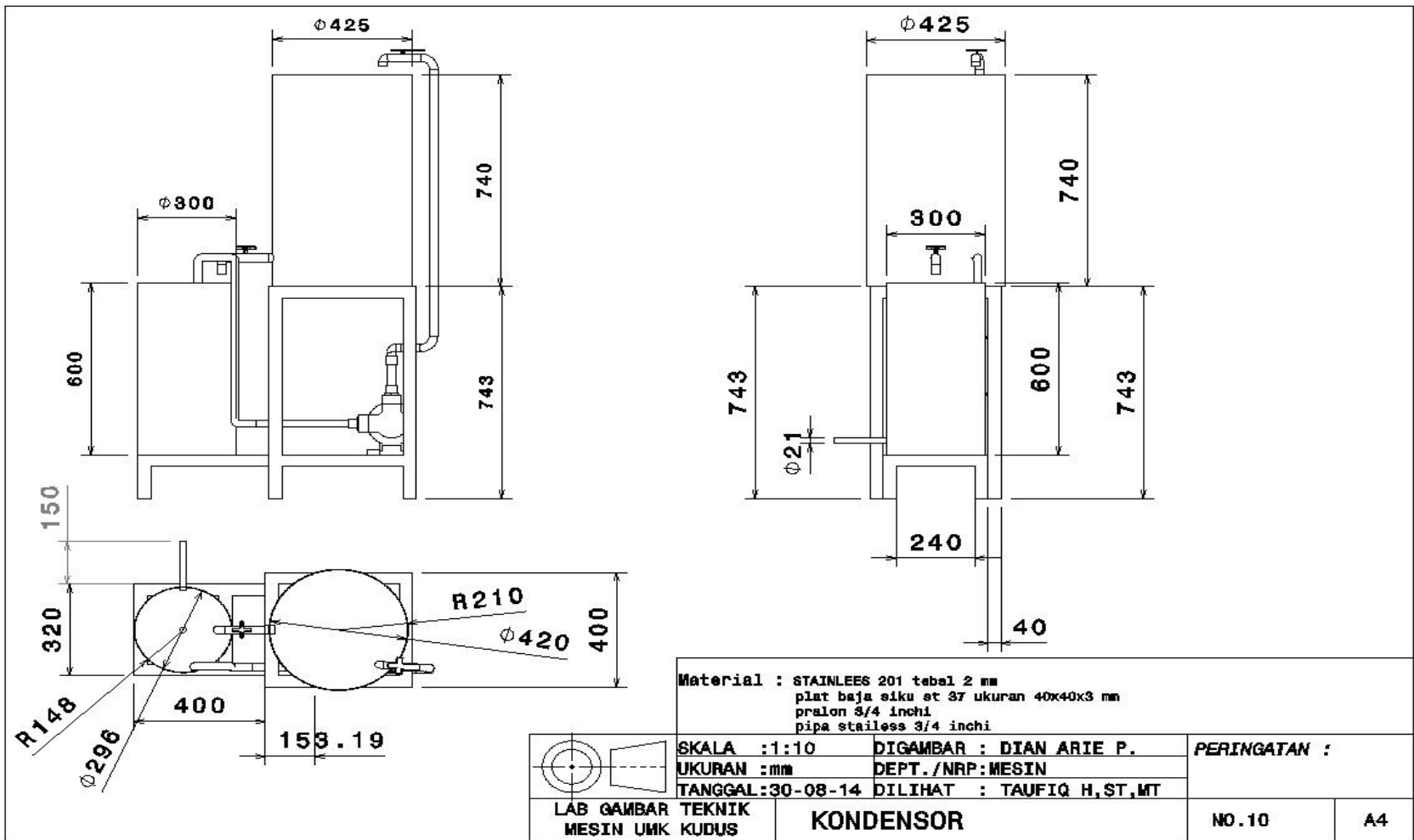
SKALA : 1:3
UKURAN : mm
TANGGAL: 30-08-14

DIGAMBAR : DIAN ARIE P.
DEPT./NRP: MESIN
DILIHAT : TAUFIQ H, ST., MT

PERINGATAN :

SEKAT-SEKAT KONDENSOR




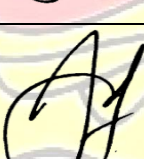
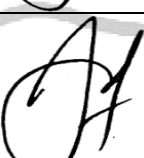
NO.09 A4



LEMBAR ASISTENSI PEMBIMBING UTAMA

PROYEK AKHIR PROGRAM STUDI TEKNIK MESIN

Nama	:	DIAN ARIE PRASETYA
NIM	:	2011-55-007
Judul	:	Perancangan Kondensor Bentuk Spiral Pada Alat Penghasil Asap Cair

No	Tanggal	Paraf Dosen	Catatan
<u>1</u>	01/08/2014		Perancangan pipa kondensor
<u>2</u>	03/08/2014		Perhitungan panjang pipa
<u>3</u>	18/08/2014		<ul style="list-style-type: none">• Diberi Kran• Kapasitas air pendingin dicari
<u>4</u>	27/08/2014		Diselesaikan
<u>5</u>	28/08/2014		Makalah seminar dan PPT dibuat
<u>6</u>			