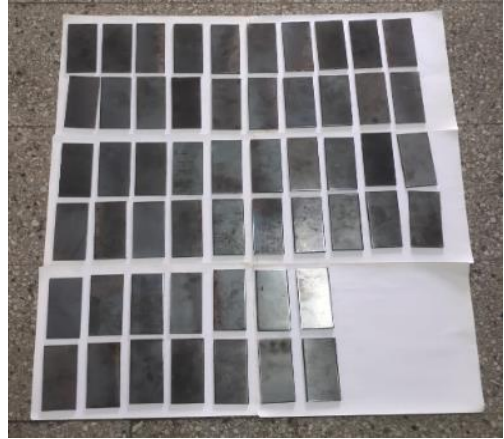


LAMPIRAN

Persiapan Material Baja ST 37



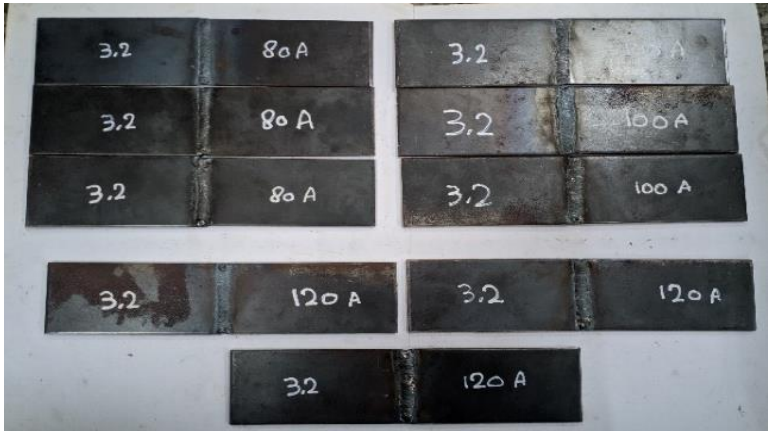
Persiapan Peralatan Pengelasan







Hasil Pengelasan



Pengujian Penetrant



Hasil Pengujian Penetrant



Pembuatan Spesimen Uji Tarik



Pengujian Tarik



Hasil Pengujian Tarik



Sertifikat Baja ST 37



SeAH Besteel Corp.
1-8, SONGMO-DONG, SUKSAN,
CHEONGJU, KOREA(373-711)

Date : 2018-03-11
Cert. No. : 201803-019834
Customer :
Heat No. : 300046

MILL CERTIFICATE

Steel Grade : AISI 1037/ST37
Shape of Product : PLATE BAR
Delivery Condition : FOUR SQUARE PLATE

TEL : +82-(0)63-460-8572, 8318(0A)
+82-(0)63-460-8114(Repres.)
FAX : +82-(0)63-460-8423 Page(0/0)
Size (mm) : 5 X 1200
Length (mm) : 2400
Weight (kg) : 115
Quantity(pcs) : 1,000

Inspection Items	Chemical Composition (wt. %)				
	C x 100	SI x 100	MN x 100	P x 1000	S x 1000
Min.	32	17	0.7	40	35
Max.	40	37	1	MAX	MAX
Result	37	37	0.8	MAX	MAX

Inspection Items	Product Hardness (HB)		
	SURFACE	100-120 HB	10-30 HRC

Mechanical Properties AISI 1037/ST37

Mechanical Properties	Symbol	Steel
Young's modulus (GPa)	E	190
Poisson's ratio	ν	0.29
Density(Kg/m ³)	P	7,740
Yield strength (MPa)	S _y	540
Shear strength (MPa)	S _s	340
Extension ratio (%)		14 - 20
Area reduction (Ps)		40 - 45
Hardness (Hb)	Hb	100 - 120

<Remark>

B/DS : 4

End of report

We hereby certify that the material described herein has been made in accordance with the rules of the contract.

RIZQI BARRAKAH STEEL

Certified by

O. Y. Cho

Manager of Quality Assurance Dept

Surat Keterangan Pengujian Tarik



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,
RISET, DAN TEKNOLOGI
POLITEKNIK NEGERI MALANG
JURUSAN TEKNIK MESIN

Jl. Soekarno Hatta No 9 Jatimulyo, Lowokwaru, Malang, 65141
Telp. (0341) 404424 – 404425, Fax (0341) 404420,
<http://www.polinema.ac.id>

SURAT KETERANGAN
NOMOR : 15/LAB.TM/2023

Yang bertanda tangan dibawah ini :

Nama : Rafik Djoenaidi, ST
N I P : 19780125 200112 1 002
Jabatan : Pranata Laboratorium Pendidikan
Politeknik Negeri Malang

Menerangkan dengan sesungguhnya bahwa mahasiswa :

Nama : Zainal Arifin
Nim/NPM : 1421900014
Prodi : S-1 Teknik Mesin
Instansi : Universitas 17 Agustus 1945 Surabaya

Benar benar telah melaksanakan pengambilan data di Jurusan Teknik Mesin Politeknik Negeri Malang, guna keperluan penyusunan skripsi.

Demikian surat keterangan ini dibuat untuk dipergunakan sebagaimana mestinya.

Malang, 19 Mei 2023

Pranata Laboratorium Pendidikan

Politeknik Negeri Malang



Rafik Djoenaidi, ST

19780125 200112 1 002



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,
RISET, DAN TEKNOLOGI
POLITEKNIK NEGERI MALANG
JURUSAN TEKNIK MESIN

Jl. Soekarno Hatta No.9 Jatimulyo, Lowokwaru, Malang, 65141
Telp. (0341) 404424 – 404425, Fax (0341) 404420,
<http://www.polinema.ac.id>

SURAT KETERANGAN
NOMOR : 16/LAB.TM/2023

Yang bertanda tangan dibawah ini :

Nama : Rafik Djoenaidi,ST
N I P : 19780125 200112 1 002
Jabatan : Pranata Laboratorium Pendidikan
Politeknik Negeri Malang

Menerangkan dengan sesungguhnya bahwa mahasiswa :

Nama : Jaya Pranata Prameswara
Nim/NPM : 1421900045
Prodi : S-1 Teknik Mesin
Instansi : Universitas 17 Agustus 1945 Surabaya

Benar benar telah melaksanakan pengambilan data di Jurusan Teknik Mesin Politeknik Negeri Malang, guna keperluan penyusunan skripsi.

Demikian surat keterangan ini dibuat untuk dipergunakan sebagaimana mestinya.

Malang, 19 Mei 2023
Pranata Laboratorium Pendidikan
Politeknik Negeri Malang


Rafik Djoenaidi,ST
19780125 200112 1 002

Data – Data Pengujian Tarik

DATA HASIL PENGUJIAN TARIK

Nama Peserta : Zainal Arifin (1.42.1900014)
 Jaya Pranata Prameswara (1.42.1900045)
 Material : Baja ST 37
 Tanggal Pengujian : 11 Mei 2023
 Perlakuan : RAW Material (1)

Dimensi Ukuran Spesimen ASTM-E8

ASTM E8/E8M - 09



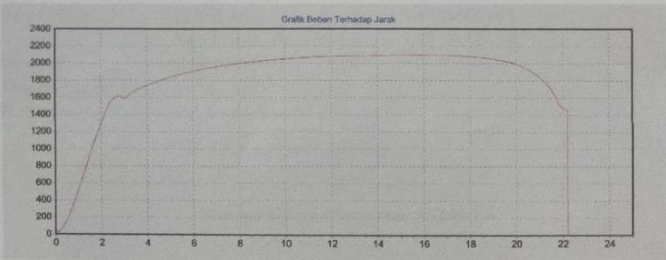
Dimensions	Standard Specimens		Subsize Specimen
	Plate-Type, 40 mm (1 5/8 in.) Wide mm (in.)	Sheet-Type, 12.5 mm (0.500 in.) Wide mm (in.)	6 mm (0.250 in.) Wide mm (in.)
G—Gage length (Note 1 and Note 2)	200.0 ± 0.2 (8.00 ± 0.01)	60.0 ± 0.1 (2.000 ± 0.005)	28.0 ± 0.1 (1.000 ± 0.003)
W—Width (Note 3 and Note 4)	40.0 ± 2.0 (1.500 ± 0.125, -0.250)	12.5 ± 0.2 (0.500 ± 0.010)	6.0 ± 0.1 (0.250 ± 0.005)
T—Thickness (Note 5)		Thickness of material	
R—Radius of fillet, min (Note 6)	25 (1)	12.5 (0.500)	6 (0.250)
L—Overall length, mm (Note 2, Note 7, and Note 8)	450 (18)	200 (8)	100 (4)
A—Length of reduced section, min	228 (9)	57 (2.25)	32 (1.25)
B—Length of grip section, min (Note 9)	75 (3)	50 (2)	30 (1.25)
C—Width of grip section, approximate (Note 4 and Note 10)	50 (2)	20 (0.750)	10 (0.375)

No.	Keterangan	Spesimen 1	Spesimen 2	Spesimen 3
1	Lebar Beban t (mm)	12,5	12,5	12,5
2	Tebal Beban t (mm)	4	4	4
3	Panjang Spesimen Awal (mm)	200	200	200
4	Panjang Spesimen Akhir (mm)	222,19	222,38	222,34
5	Panjang Awal L_0 (mm)	82	82	82
6	Panjang Akhir L_f (mm)	104,19	104,38	104,34
7	Pertambahan Panjang ΔL (mm)	22,19	22,38	22,34
8	Beban Luluh (<i>Yield Point</i>) (Kg)	1590	1618,4	1540
9	Beban Maksimum (<i>Ultimate Stenght</i>) (Kg)	2097,8	1506,4	1397,8
10	Beban Putus (<i>Fracture</i>) (Kg)	1455,8	1506,4	1397,8

PEMBUATAN & PERALAKUAN
 BAHAN
 LAJ. BAHAN TEKNIK MESIN
 POLITEKNIK NEGERI MALANG

Grafik Uji Tarik

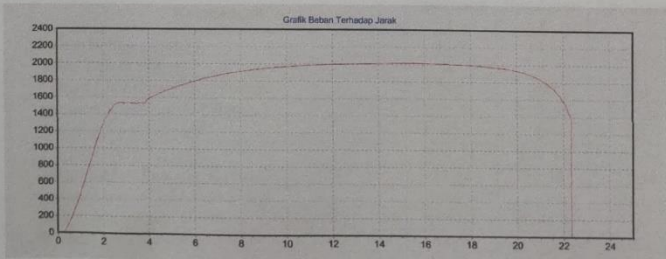
RAW 1



RAW 2



RAW 3



DATA HASIL PENGUJIAN TARIK

Nama Peserta : Zainal Arifin (1.42.1900014)
 Jaya Pranata Prameswara (1.42.1900045)
 Material : Baja ST 37
 Tanggal Pengujian : 11 Mei 2023
 Perlakuan : Ø 1,6 mm Arus 80 A

Dimensi Ukuran Spesimen ASTM-E8

E8/E8M - 09



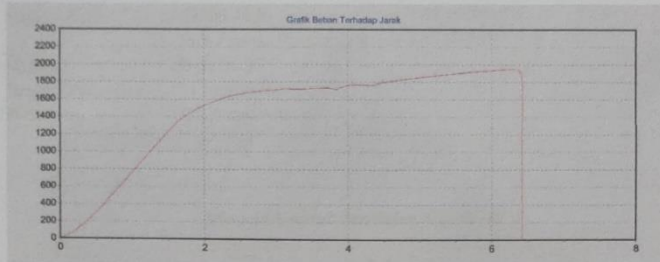
	Dimensions		
	Standard Specimens		Subsize Specimen
	Plate Type: 40 mm [1 500 in.] Wide	Sheet Type: 12.5 mm [0.500 in.] Wide	6 mm [0.250 in.] Wide
	mm [in.]	mm [in.]	mm [in.]
G—Gage length (Note 1 and Note 2)	200.0 ± 0.2 [8.00 ± 0.01]	50.0 ± 0.1 [2.000 ± 0.005]	25.0 ± 0.1 [1.000 ± 0.003]
W—Width (Note 3 and Note 4)	40.0 ± 2.0 [1.500 ± 0.125, -0.250]	12.5 ± 0.2 [0.500 ± 0.010]	6.0 ± 0.1 [0.250 ± 0.005]
t—Thickness (Note 5)		Thickness of material	
ti—Radius of fillet, min (Note 6)	25 [1]	12.5 [0.500]	6.0 [250]
L—Overall length, min (Note 2, Note 7, and Note 8)	450 [18]	200 [8]	100 [4]
A—Length of reduced section, min	225 [9]	57.5 [2.25]	22.5 [25]
B—Length of grip section, min (Note 9)	75 [3]	50 [2]	30 [1.25]
C—Width of grip section, approximate (Note 4 and Note 9)	50 [2]	25 [0.750]	10 [0.375]

No.	Keterangan	Spesimen 1	Spesimen 2	Spesimen 3
1	Lebar Beban t (mm)	12,5	12,5	12,5
2	Tebal Beban t (mm)	4	4	4
3	Panjang Spesimen Awal (mm)	200	200	200
4	Panjang Spesimen Akhir (mm)	222,34	222,34	222,34
5	Panjang Awal L_0 (mm)	82	82	82
6	Panjang Akhir L_f (mm)	104,34	104,34	104,34
7	Pertambahan Panjang ΔL (mm)	22,34	22,34	22,34
8	Beban Luluh (<i>Yield Point</i>) (Kg)	1362,4	1619	1481,4
9	Beban Maksimum (<i>Ultimate Stenght</i>) (Kg)	1951,4	2186,4	2118
10	Beban Putus (<i>Fracture</i>) (Kg)	1885	2112	

PENGUJIAN & PERALOKAN
BAHAN
 LAB. BAHAN TEKNIK MESIN
 POLITEKNIK NEGERI MALANG

Grafik Uji Tarik

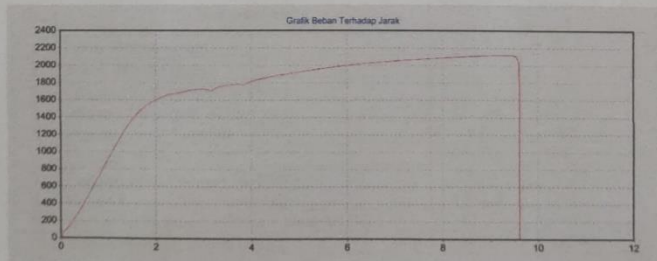
Tungsten Ø 1,6 mm Arus 80 A 1



Tungsten Ø 1,6 mm Arus 80 A 2



Tungsten Ø 1,6 mm Arus 80 A 3



DATA HASIL PENGUJIAN TARIK

Nama Peserta : Zainal Arifin (1.42.1900014)
 Jaya Pranata Prameswara (1.42.1900045)
 Material : Baja ST 37
 Tanggal Pengujian : 11 Mei 2023
 Perlakuan : Ø 1,6 mm Arus 100 A

Dimensi Ukuran Spesimen ASTM-E8

 E8/E8M - 09



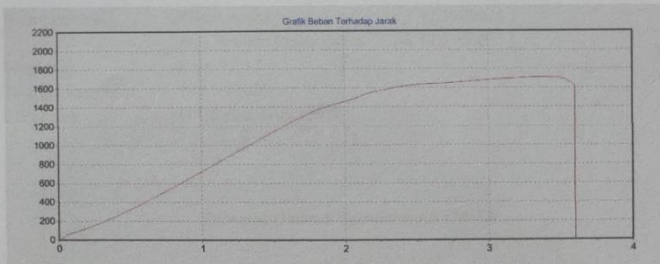
	Dimensions		
	Standard Specimens	Sheet Type	Subsize Specimen
	Plate Type: 40 mm [1 500 in.] Wide	Sheet Type: 12.5 mm [0 500 in.] Wide	6 mm [0 250 in.] Wide
	mm [in.]	mm [in.]	mm [in.]
G—Gage length (Note 1 and Note 2)	200.0 ± 0.2 [8.00 ± 0.01]	50.0 ± 0.1 [2.000 ± 0.005]	25.0 ± 0.1 [1.000 ± 0.005]
W—Width (Note 3 and Note 4)	40.0 ± 2.0 [1 500 ± 0 125, -0 250]	12.5 ± 0.2 [0 500 ± 0 010]	6.0 ± 0.1 [0 250 ± 0 005]
T—Thickness (Note 4)		Thickness of material	
R—Radius of fillet, min (Note 6)	25 [1]	12.5 [0 500]	6 [0 250]
L—Overall length, min (Note 2, Note 7, and Note 8)	450 [18]	200 [8]	100 [4]
A—Length of reduced section, min	225 [9]	57 [2 25]	32 [1 25]
B—Length of grip section, min (Note 9)	75 [3]	60 [2]	30 [1 25]
C—Width of grip section, approximate (Note 4 and Note 9)	50 [2]	20 [0 750]	10 [0 375]

No.	Keterangan	Spesimen 1	Spesimen 2	Spesimen 3
1	Lebar Beban <i>i</i> (mm)	12,5	12,5	12,5
2	Tebal Beban <i>t</i> (mm)	4	4	4
3	Panjang Spesimen Awal (mm)	200	200	200
4	Panjang Spesimen Akhir (mm)	222,34	222,34	222,34
5	Panjang Awal <i>L₀</i> (mm)	82	82	82
6	Panjang Akhir <i>L_f</i> (mm)	104,34	104,34	104,34
7	Pertambahan Panjang ΔL (mm)	22,34	22,34	22,34
8	Beban Luluh (<i>Yield Point</i>) (Kg)	1382,8	1708,2	1785,8
9	Beban Maksimum (<i>Ultimate Stenght</i>) (Kg)	1711	2198,8	2210
10	Beban Putus (<i>Fracture</i>) (Kg)	1628	1821	1772,2



Grafik Uji Tarik

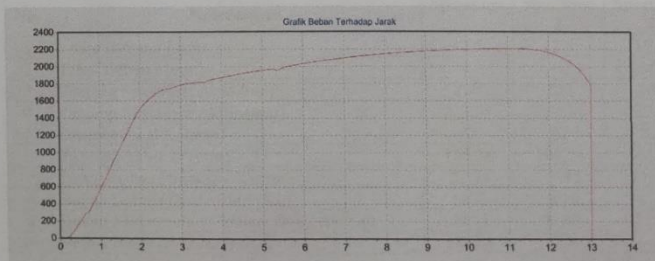
Tungsten Ø 1,6 mm Arus 100 A 1



Tungsten Ø 1,6 mm Arus 100 A 2



Tungsten Ø 1,6 mm Arus 100 A 3



DATA HASIL PENGUJIAN TARIK

Nama Peserta : Zainal Arifin (1.42.1900014)
 Jaya Pranata Prameswara (1.42.1900045)
 Material : Baja ST 37
 Tanggal Pengujian : 11 Mei 2023
 Perlakuan : Ø 1,6 mm Arus 120 A

Dimensi Ukuran Spesimen ASTM-E8

 E8/E8M - 09



	Dimensions		
	Standard Specimens	Standard Specimens	Subsize Specimens
	Plate Type: 40 mm (1.500 in.) Wide	Sheet Type: 12.5 mm (0.500 in.) Wide	6 mm (0.250 in.) Wide
	mm [in.]	mm [in.]	mm [in.]
G—Gage length (Note 1 and Note 2)	200.0 ± 0.2 (8.00 ± 0.01)	50.0 ± 0.1 (2.000 ± 0.005)	25.0 ± 0.1 (1.000 ± 0.003)
W—Width (Note 3 and Note 4)	40.0 ± 2.0 (1.500 ± 0.125, -0.250)	12.5 ± 0.2 (0.500 ± 0.010)	6.0 ± 0.1 (0.250 ± 0.005)
T—Thickness (Note 5)		Thickness of material	
R—Radius of fillet, mm (Note 6)	25 [1]	12.5 (0.500)	6 (0.250)
L—Overall length, mm (Note 2, Note 7, and Note 8)	450 [18]	200 [8]	100 [4]
A—Length of reduced section, mm	225 [9]	87.5 (2.25)	32 (1.25)
B—Length of grip section, mm (Note 9)	75 [3]	50 [2]	30 (1.25)
C—Width of grip section, approximate (Note 4 and Note 9)	50 [2]	20 (0.750)	10 (0.375)

No.	Keterangan	Spesimen 1	Spesimen 2	Spesimen 3
1	Lebar Beban t (mm)	12,5	12,5	12,5
2	Tebal Beban t (mm)	4	4	4
3	Panjang Spesimen Awal (mm)	200	200	200
4	Panjang Spesimen Akhir (mm)	222,34	222,34	222,34
5	Panjang Awal L_0 (mm)	82	82	82
6	Panjang Akhir L_f (mm)	104,34	104,34	104,34
7	Pertambahan Panjang ΔL (mm)	22,34	22,34	22,34
8	Beban Luluh (<i>Yield Point</i>) (Kg)	1606	1610	1412,2
9	Beban Maksimum (<i>Ultimate Stenght</i>) (Kg)	2195	2120	2155
10	Beban Putus (<i>Fracture</i>) (Kg)	1743,4	1750	1610

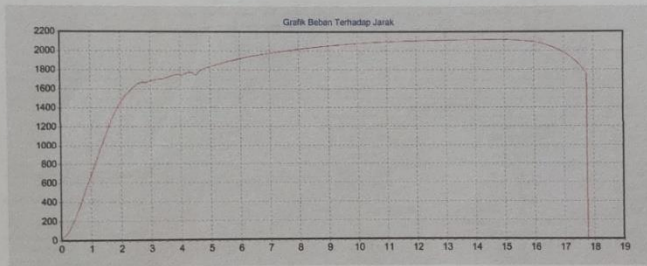
PENGUJIAN & PERLAKUAN
BAHAN
 L. D. BAHAN TEKNIK MESIN
 FOLIO TEKNIK NEGERI MALANG

Grafik Uji Tarik

Tungsten Ø 1,6 mm Arus 120 A 1



Tungsten Ø 1,6 mm Arus 120 A 2



Tungsten Ø 1,6 mm Arus 120 A 3



DATA HASIL PENGUJIAN TARIK

Nama Peserta : Zainal Arifin (1.42.1900014)
 Jaya Pranata Prameswara (1.42.1900045)
 Material : Baja ST 37
 Tanggal Pengujian : 11 Mei 2023
 Perlakuan : Ø 2,4 mm Arus 80 A

Dimensi Ukuran Spesimen ASTM-E8

E8/E8M - 09



	Dimensions		
	Standard Specimens	Sheet Type	Subsize Specimen
	Plate Type: 40 mm [1.500 in.] Wide	Sheet Type: 12.5 mm [0.500 in.] Wide	6 mm [0.250 in.] Wide
	mm [in.]	mm [in.]	mm [in.]
G—Gage length (Note 1 and Note 2)	200.0 ± 0.2 [8.00 ± 0.01]	50.0 ± 0.1 [2.000 ± 0.005]	25.0 ± 0.1 [1.000 ± 0.003]
W—Width (Note 3 and Note 4)	40.0 ± 2.0 [1.500 ± 0.125, -0.250]	12.5 ± 0.2 [0.500 ± 0.010]	6.0 ± 0.1 [0.250 ± 0.005]
T—Thickness (Note 5)		Thickness of material	
R—Radius of fillet, min (Note 6)	25 [1]	12.5 [0.500]	6 [0.250]
L—Overall length, min (Note 2, Note 7, and Note 8)	450 [18]	200 [8]	100 [4]
A—Length of reduced section, min	225 [9]	57 [2.25]	32 [1.25]
B—Length of grip section, min (Note 9)	75 [3]	50 [2]	30 [1.25]
C—Width of grip section, approximate (Note 4 and Note 10)	50 [2]	20 [0.750]	10 [0.375]

No.	Keterangan	Spesimen 1	Spesimen 2	Spesimen 3
1	Lebar Beban <i>t</i> (mm)	12,5	12,5	12,5
2	Tebal Beban <i>t</i> (mm)	4	4	4
3	Panjang Spesimen Awal (mm)	200	200	200
4	Panjang Spesimen Akhir (mm)	222,34	222,34	222,34
5	Panjang Awal <i>L₀</i> (mm)	82	82	82
6	Panjang Akhir <i>L_f</i> (mm)	104,34	104,34	104,34
7	Pertambahan Panjang ΔL (mm)	22,34	22,34	22,34
8	Beban Luluh (<i>Yield Point</i>) (Kg)	1339,8	1250,6	1217,8
9	Beban Maksimum (<i>Ultimate Stenght</i>) (Kg)	1687,2	1394,6	1380,8
10	Beban Putus (<i>Fracture</i>) (Kg)	1670,6	1339,6	1123

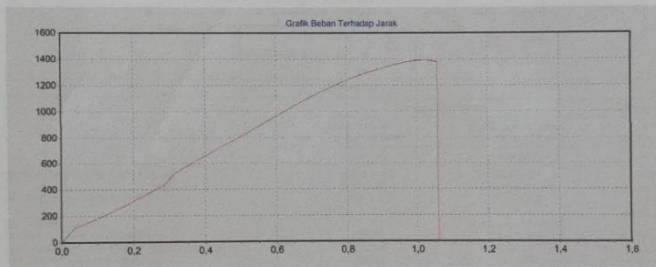
PENGUJIAN & PERLAKUAN
 11 MEI 2023
 P. D. BAHU TEKNIK MESIN
 ESI MALANG

Grafik Uji Tarik

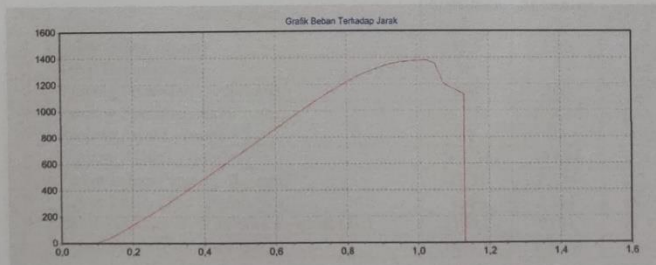
Tungsten Ø 2,4 mm Arus 80 A 1



Tungsten Ø 2,4 mm Arus 80 A 2



Tungsten Ø 2,4 mm Arus 80 A 3



DATA HASIL PENGUJIAN TARIK

Nama Peserta : Zainal Arifin (1.42.1900014)
 Jaya Pranata Prameswara (1.42.1900045)
 Material : Baja ST 37
 Tanggal Pengujian : 11 Mei 2023
 Perlakuan : Ø 2,4 mm Arus 100 A

Dimensi Ukuran Spesimen ASTM-E8

E8/E8M - 09



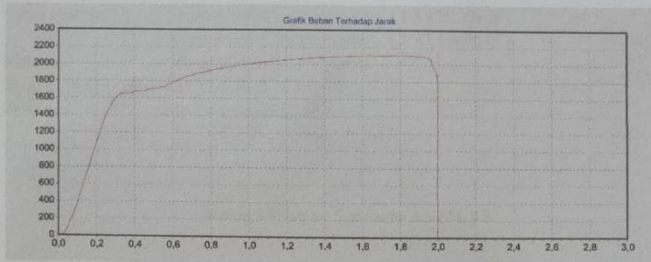
	Dimensions		
	Standard Specimens	Standard Specimens	Subsize Specimens
	Plate-Type 40 mm (1 5/8 in.) Wide	Sheet-Type 12.5 mm (0 5/8 in.) Wide	6 mm (0 250 in.) Wide
	mm [in.]	mm [in.]	mm [in.]
G—Gage length (Note 1 and Note 2)	200.0 ± 0.2 (8 3/8 ± 0.01)	60.0 ± 0.1 (2 000 ± 0.005)	25.0 ± 0.1 (1 000 ± 0.005)
W—Width (Note 3 and Note 4)	40.0 ± 2.0 (1 5/8 ± 0 125 -0 250)	12.5 ± 0.2 (0 500 ± 0 010)	6.0 ± 0.1 (0 250 ± 0 005)
T—Thickness (Note 5)		Thickness of material	Thickness of material
R—Radius of fillet, min (Note 6)	25 (1)	12.5 (0 500)	6 (0 250)
L—Overall length, min (Note 2, Note 7, and Note 8)	450 (18)	200 (8)	150 (6)
A—Length of reduced section, min	225 (9)	57 (2 25)	32 (1 25)
B—Length of grip section, min (Note 9)	75 (3)	50 (2)	30 (1 25)
C—Width of grip section, approximate (Note 4 and Note 10)	50 (2)	20 (0 750)	10 (0 375)

No.	Keterangan	Spesimen 1	Spesimen 2	Spesimen 3
1	Lebar Beban t (mm)	12,5	12,5	12,5
2	Tebal Beban t (mm)	4	4	4
3	Panjang Spesimen Awal (mm)	200	200	200
4	Panjang Spesimen Akhir (mm)	222,34	222,34	222,34
5	Panjang Awal L_0 (mm)	82	82	82
6	Panjang Akhir L_f (mm)	104,34	104,34	104,34
7	Pertambahan Panjang ΔL (mm)	22,34	22,34	22,34
8	Beban Luluh (<i>Yield Point</i>) (Kg)	1546	1514	1673,6
9	Beban Maksimum (<i>Ultimate Stenght</i>) (Kg)	2109,2	2151	2130,6
10	Beban Putus (<i>Fracture</i>) (Kg)	1869,8	1702,8	1731,4

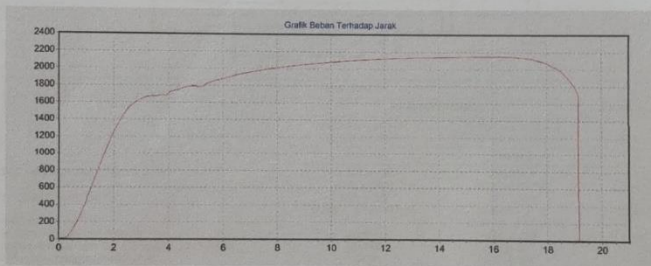
PENGUJIAN & PERLAKUAN
BIMBANG
 TEKNIK MESIN
 FAKULTAS TEKNIK
 UNIVERSITAS BRAWIJAYA
 MALANG

Grafik Uji Tarik

Tungsten Ø 2,4 mm Arus 100 A 1



Tungsten Ø 2,4 mm Arus 100 A 2




Tungsten Ø 2,4 mm Arus 100 A 3



DATA HASIL PENGUJIAN TARIK

Nama Peserta : Zainal Arifin (1.42.1900014)
 Jaya Pranata Prameswara (1.42.1900045)
 Material : Baja ST 37
 Tanggal Pengujian : 11 Mei 2023
 Perlakuan : \varnothing 2,4 mm Arus 120 A

Dimensi Ukuran Spesimen ASTM-E8

 E8/E8M - 09



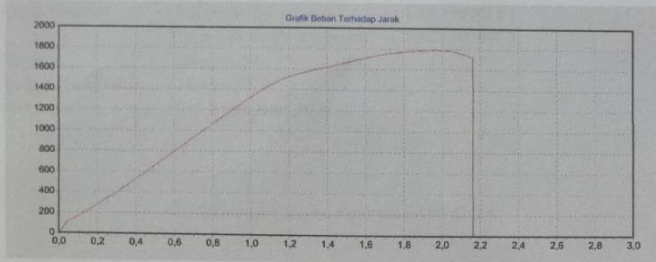
Dimensions	Standard Specimens		Subsize Specimen
	Plate Type: 40 mm [1 500 in] Wide	Sheet Type: 12.5 mm [0 500 in] Wide	6 mm [0 250 in] Wide
	mm [in.]	mm [in.]	mm [in.]
G—Gage length (Note 1 and Note 2)	200 0 ± 0.2 [8 00 ± 0.01]	60 0 ± 0.1 [2 000 ± 0.005]	25 0 ± 0.1 [1 000 ± 0.003]
W—Width (Note 3 and Note 4)	40 0 ± 2.0 [1 500 ± 0.125, -0.250]	12.5 ± 0.2 [0 500 ± 0.010]	6.0 ± 0.1 [0 250 ± 0.005]
T—Thickness (Note 4)		Thickness of material	
R—Radius of fillet, min (Note 4)	25 [1]	12.5 [0 500]	6 [0 250]
L—Overall length, min (Note 2, Note 7, and Note 8)	450 [18]	200 [8]	100 [4]
A—Length of reduced section, min	225 [9]	57 [2 24]	32 [1 26]
B—Length of grip section, min (Note 9)	75 [3]	50 [2]	30 [1 25]
C—Width of grip section, approximate (Note 4 and Note 9)	50 [2]	20 [0 750]	10 [0 375]

No.	Keterangan	Spesimen	Spesimen	Spesimen
		1	2	3
1	Lebar Beban l (mm)	12,5	12,5	12,5
2	Tebal Beban t (mm)	4	4	4
3	Panjang Spesimen Awal (mm)	200	200	200
4	Panjang Spesimen Akhir (mm)	222,34	222,34	222,34
5	Panjang Awal L_0 (mm)	82	82	82
6	Panjang Akhir L_f (mm)	104,34	104,34	104,34
7	Pertambahan Panjang ΔL (mm)	22,34	22,34	22,34
8	Beban Luluh (<i>Yield Point</i>) (Kg)	1548,2	1502,6	1620,2
9	Beban Maksimum (<i>Ultimate Stenght</i>) (Kg)	1794,8	2120,4	2169,4
10	Beban Putus (<i>Fracture</i>) (Kg)	1728	1815	1544,4



Grafik Uji Tarik

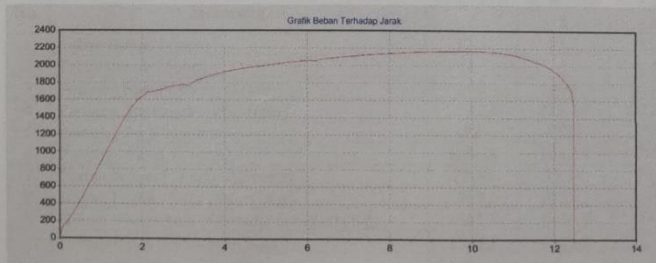
Tungsten Ø 2,4 mm Arus 120 A 1



Tungsten Ø 2,4 mm Arus 120 A 2



Tungsten Ø 2,4 mm Arus 120 A 3



DATA HASIL PENGUJIAN TARIK

Nama Peserta : Zainal Arifin (1.42.1900014)
 Jaya Pranata Prameswara (1.42.1900045)
 Material : Baja ST 37
 Tanggal Pengujian : 11 Mei 2023
 Perlakuan : Ø 3,2 mm Arus 80 A

Dimensi Ukuran Spesimen ASTM-E8

 E8/E8M - 09



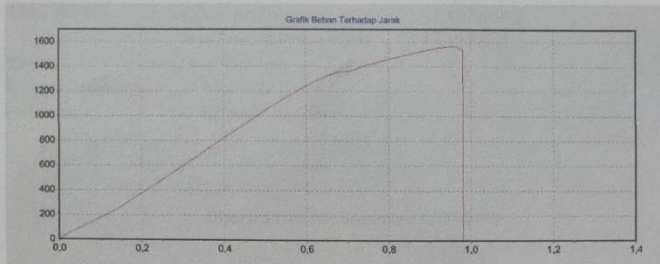
	Dimensions		
	Standard Specimens	Sheet Type	Subsize Specimen
	Plate Type: 40 mm [1.500 in.] Wide	Sheet Type: 12.5 mm [0.500 in.] Wide	6 mm [0.250 in.] Wide
	mm [in.]	mm [in.]	mm [in.]
G—Gage length (Note 1 and Note 2)	200.0 ± 0.2 [8.00 ± 0.01]	50.0 ± 0.1 [2.000 ± 0.005]	25.0 ± 0.1 [1.000 ± 0.003]
W—Width (Note 3 and Note 4)	40.0 ± 2.0 [1.500 ± 0.125-0.250]	12.5 ± 0.2 [0.500 ± 0.010]	6.0 ± 0.1 [0.250 ± 0.005]
T—Thickness (Note 5)		thickness of material	
R—Radius of fillet, min (Note 6)	25 (1)	12.5 (0.500)	6 (0.250)
L—Overall length, min (Note 2, Note 7, and Note 8)	450 (18)	200 (8)	100 (4)
A—Length of reduced section, min	225 (9)	57 (2.25)	32 (1.25)
B—Length of grip section, min (Note 9)	75 (3)	50 (2)	30 (1.25)
C—Width of grip section, approximate (Note 4 and Note 9)	50 (2)	20 (0.750)	10 (0.375)

No.	Keterangan	Spesimen 1	Spesimen 2	Spesimen 3
1	Lebar Beban <i>t</i> (mm)	12,5	12,5	12,5
2	Tebal Beban <i>t</i> (mm)	4	4	4
3	Panjang Spesimen Awal (mm)	200	200	200
4	Panjang Spesimen Akhir (mm)	222,34	222,34	222,34
5	Panjang Awal L_0 (mm)	82	82	82
6	Panjang Akhir L_f (mm)	104,34	104,34	104,34
7	Pertambahan Panjang ΔL (mm)	22,34	22,34	22,34
8	Beban Luluh (<i>Yield Point</i>) (Kg)	1209,6	1281,2	1405,6
9	Beban Maksimum (<i>Ultimate Stenght</i>) (Kg)	1567,8	1476,8	1876
10	Beban Putus (<i>Fracture</i>) (Kg)	1539,8	1347,2	1872,2

PENGUJIAN & PERLAKUAN
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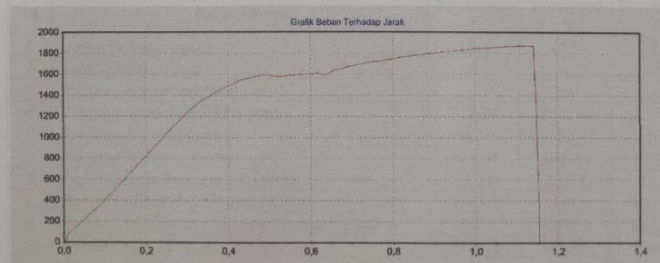
Tungsten Ø 3,2 mm Arus 80A 1



Tungsten Ø 3,2 mm Arus 80 A 2




Tungsten Ø 3,2 mm Arus 80 A 3



DATA HASIL PENGUJIAN TARIK

Nama Peserta : Zainal Arifin (1.42.1900014)
 Jaya Pranata Prameswara (1.42.1900045)
 Material : Baja ST 37
 Tanggal Pengujian : 11 Mei 2023
 Perlakuan : Ø 3,2 mm Arus 100 A

Dimensi Ukuran Spesimen ASTM-E8

 E8/E8M-09



	Dimensions		
	Standard Specimens	Subsize Specimens	Subsize Specimens
	Plate Type: 40 mm (1.500 in.) Wide	Sheet Type: 12.5 mm (0.500 in.) Wide	6 mm (0.250 in.) Wide
	mm [in.]	mm [in.]	mm [in.]
G—Gage length (Note 1 and Note 2)	200.0 ± 0.2 (8.00 ± 0.01)	50.0 ± 0.1 (2.000 ± 0.005)	25.0 ± 0.1 (1.000 ± 0.005)
W—Width (Note 3 and Note 4)	40.0 ± 2.0 (1.500 ± 0.125–0.250)	12.5 ± 0.2 (0.500 ± 0.010)	6.0 ± 0.1 (0.250 ± 0.005)
T—Thickness (Note 5)		Thickness of material	
R—Radius of fillet, mm (Note 6)	25 (1)	12.5 (0.500)	6 (0.250)
L—Overall length, mm (Note 2, Note 7, and Note 8)	402 (16)	200 (8)	100 (4)
A—Length of reduced section, mm	229 (9)	51 (2.05)	26 (1.25)
B—Length of grip section, mm (Note 9)	75 (3)	50 (2)	30 (1.25)
C—Width of grip section, approximate (Note 4 and Note 10)	50 (2)	20 (0.750)	10 (0.375)

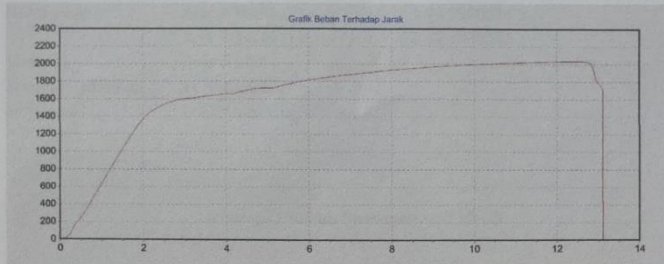
No.	Keterangan	Spesimen 1	Spesimen 2	Spesimen 3
1	Lebar Beban <i>t</i> (mm)	12,5	12,5	12,5
2	Tebal Beban <i>t</i> (mm)	4	4	4
3	Panjang Spesimen Awal (mm)	200	200	200
4	Panjang Spesimen Akhir (mm)	222,34	222,34	222,34
5	Panjang Awal <i>L₀</i> (mm)	82	82	82
6	Panjang Akhir <i>L_f</i> (mm)	104,34	104,34	104,34
7	Pertambahan Panjang ΔL (mm)	22,34	22,34	22,34
8	Beban Luluh (<i>Yield Point</i>) (Kg)	1393,6	1445,6	1217,8
9	Beban Maksimum (<i>Ultimate Stenght</i>) (Kg)	2036	2109,4	2015,4
10	Beban Putus (<i>Fracture</i>) (Kg)	1722,2	1893,8	2009

PENGUJIAN & PERALAKAN

K MESIN
TEKNIK
MELANG

Grafik Uji Tarik

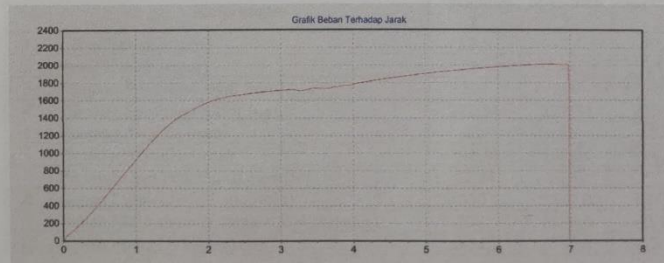
Tungsten Ø 3,2 mm Arus 100A 1



Tungsten Ø 3,2 mm Arus 100 A 2



Tungsten Ø 3,2 mm Arus 100 A 3



DATA HASIL PENGUJIAN TARIK

Nama Peserta : Zainal Arifin (1.42.1900014)
 Jaya Pranata Prameswara (1.42.1900045)
 Material : Baja ST 37
 Tanggal Pengujian : 11 Mei 2023
 Perlakuan : O 3,2 mm Arus 120 A

Dimensi Ukuran Spesimen ASTM-E8

E8/E8M - 09



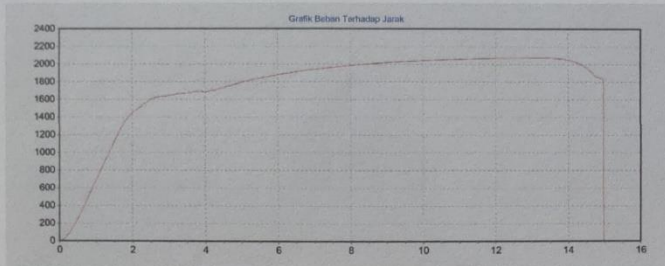
	Dimensions		
	Standard Specimens	Standard Specimens	Subsize Specimen
	Plate Type 40 mm (1 500 in.) Wide	Sheet Type 12.5 mm (0.500 in.) Wide	6 mm (0.250 in.) Wide
	mm [in.]	mm [in.]	mm [in.]
G—Gage length (Note 1 and Note 2)	200.0 ± 0.2 (8.00 ± 0.01)	50.0 ± 0.1 (2.000 ± 0.005)	25.0 ± 0.1 (1.000 ± 0.003)
W—Width (Note 3 and Note 4)	40.0 ± 2.0 (1.500 ± 0.125, -0.250)	12.5 ± 0.2 (0.500 ± 0.010)	6.0 ± 0.1 (0.250 ± 0.005)
t—Thickness (Note 5)		thickness of material	
R—Radius of fillet, min (Note 6)	25 [1]	12.5 (0.500)	6.30 (250)
L—Overall length, min (Note 2, Note 7, and Note 8)	400 [16]	200 [8]	100 [4]
A—Length of reduced section, min	229 [9]	87 (2.25)	32 (1.25)
B—Length of grip section, min (Note 9)	75 [3]	50 [2]	30 (1.25)
C—Width of grip section, approximate (Note 4 and Note 10)	50 [2]	20 (0.750)	10 (0.375)

No.	Keterangan	Spesimen 1	Spesimen 2	Spesimen 3
1	Lebar Beban t (mm)	12,5	12,5	12,5
2	Tebal Beban t (mm)	4	4	4
3	Panjang Spesimen Awal (mm)	200	200	200
4	Panjang Spesimen Akhir (mm)	222,34	222,34	222,34
5	Panjang Awal L_0 (mm)	82	82	82
6	Panjang Akhir L_f (mm)	104,34	104,34	104,34
7	Pertambahan Panjang ΔL (mm)	22,34	22,34	22,34
8	Beban Luluh (Yield Point) (Kg)	1500,2	1567,8	1573,2
9	Beban Maksimum (Ultimate Stenght) (Kg)	2075	2186,6	2078
10	Beban Putus (Fracture) (Kg)	1835,2	1767,6	1730,8

PENGUJIAN & PERLAKUAN
 11 MEI 2023
 TEKNIK MESIN
 UNIVERSITAS MALANG

Grafik Uji Tarik

Tungsten Ø 3,2 mm Arus 120A 1



Tungsten Ø 3,2 mm Arus 120 A 2



Tungsten Ø 3,2 mm Arus 120 A 3

