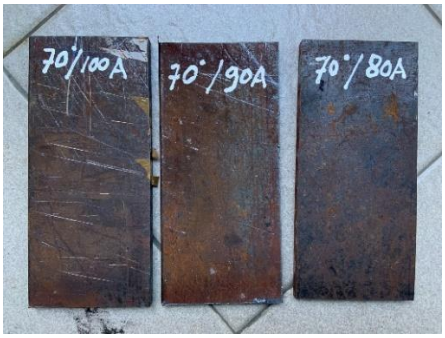
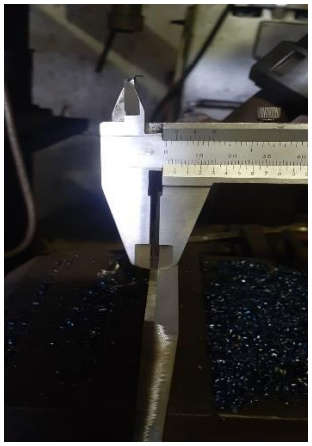
LAMPIRAN

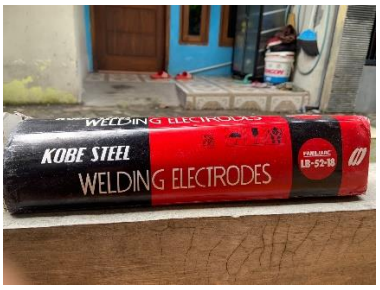
Persiapan Material SS 400



Proses Pembuatan Kampuh

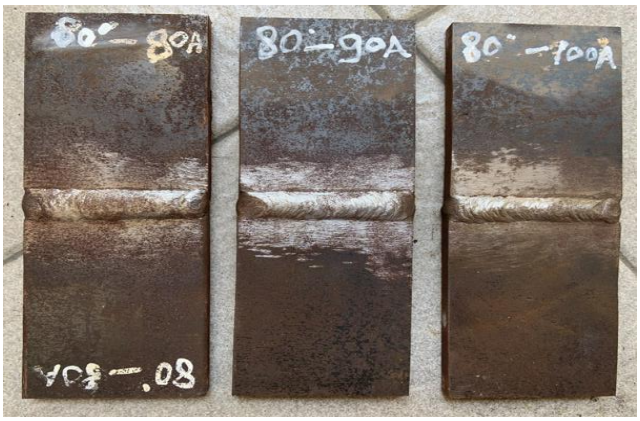


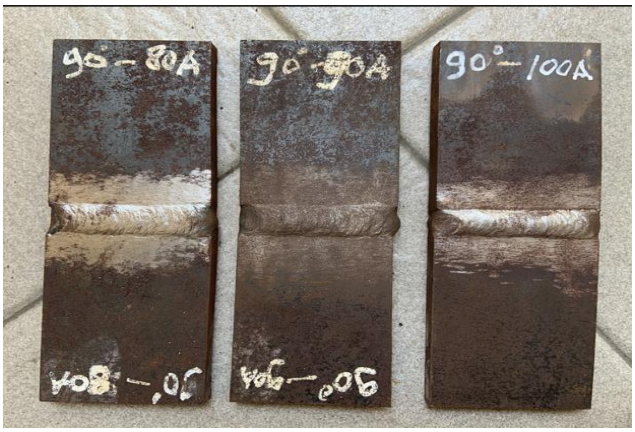
Persiapan Perlengkapan pengelasan



Proses Pengelasan

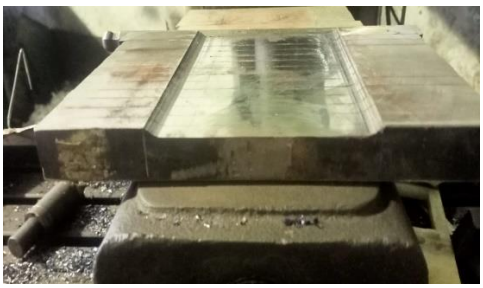
Hasil Pengelasan





Proses pengujian Dye Penetrant

Pembuatan Spesimen Uji Tarik



Proses Pengujian Tarik Di Lab Material Politeknik Negri Malang

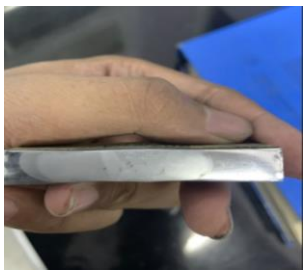
Hasil Pengujian Tarik Di Lab Material Politeknik Negri Malang

Pembuatan Spesimen Uji Struktur Mikro




Proses Pengujian Struktur Mikro Di Lab Material Politeknik Negri Malang






Data Uji 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 : 13/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	:	Andriyas Novi Saputra
Nim/NPM	:	1421900159
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

FRM.RME.02.01.00

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 : 14/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	:	Bayu Adi Firmansyah
Nim/NPM	:	1421900165
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

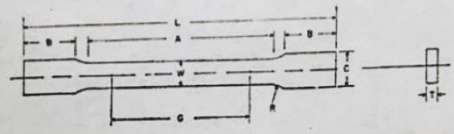
Rafik Djoenaidi,ST
19780125 200112 1 002

DATA HASIL PENGUJIAN TARIK

Nama Peserta : Andriyas Novi Saputra (1.42.1900159)
Bayu Adi Firmansyah (1.42.1900165)
Material : Baja SS 400
Tanggal Pengujian : 17 Mei 2023
Perlakuan : RAW Material

Dimensi Ukuran Spesimen ASTM-E8

E8/E8M – 09



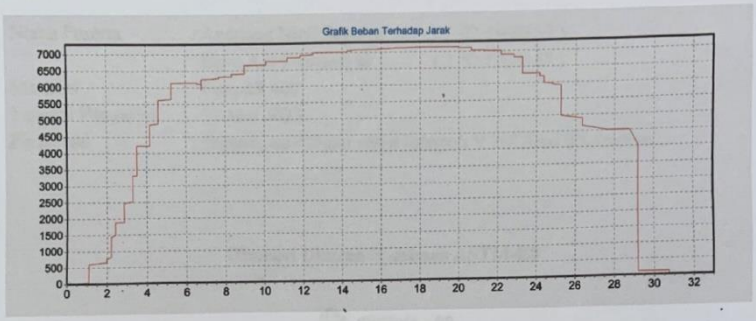
Dimensions	Standard Specimens		Subsize Specimen
	Plate-Type, 40 mm [1.500 in.] Wide	Sheet-Type, 12.5 mm [0.500 in.] Wide	6 mm [0.250 in.] Wide
	mm [in.]	mm [in.]	mm [in.]
G—Gage length (Note 1 and Note 2)	200.0 ± 0.2 [8.00 ± 0.01]	50.0 ± 0.1 [2.000 ± 0.005]	25.0 ± 0.1 [1.000 ± 0.003]
W—Width (Note 3 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	
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
1	Lebar Beban *i* (mm)	12,5	12,5
2	Tebal Beban *t* (mm)	10	10
3	Panjang Awal L_0 (mm)	200	200
4	Panjang Akhir L_f (mm)	232,27	234,91
5	Pertambahan Panjang ΔL (mm)	32,27	34,91
6	L_y (mm)	6,8	5,49
7	L_{max}(mm)	18,66	18,22
8	L_{putus}(mm)	28,76	32,49
9	Beban Luluh (*Yield Point*) (Kg)	6217,4	5882,4
10	Beban Maksimum (*Ultimate Stenght*) (Kg)	7142	7040,4
11	Beban Putus (*Fracture*) (Kg)	4506,8	4480,2

L. B. BAHAN TEKNIK TES N
POLITEKNIK NEGERI MALANG

Grafik Uji Tarik

RAW 1



RAW 1

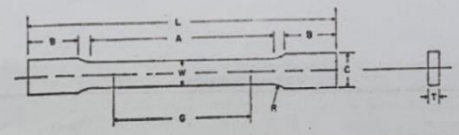
PENGUJIAN & PERLAKUAN
B.M.N
LAB. BAHAN TEKNIK MESIN
POLITEKNIK NEGERI MALANG

DATA HASIL PENGUJIAN TARIK

Nama Peserta : Andriyas Novi Saputra (1.42.1900159)
Bayu Adi Firmansyah (1.42.1900165)
Material : Baja SS 400
Tanggal Pengujian : 17 Mei 2023
Perlakuan : Pengelasan dengan sudut kampuh V 70° Arus 80 Ampere

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	
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* (mm)	12,5	12,5	12,5
2	Tebal Beban *t* (mm)	10	10	10
3	Panjang Awal L_0 (mm)	200	200	200
4	Panjang Akhir L_f (mm)	221,95	228,32	238,2
5	Pertambahan Panjang ΔL (mm)	21,95	28,32	38,2
6	L_y (mm)	4,61	4,17	2,85
7	L_{max}(mm)	13,61	12,73	18,66
8	L_{putus}(mm)	19,98	24,81	33,37
9	Beban Luluh (*Yield Point*) (Kg)	5760	5589,4	3388,4
10	Beban Maksimum (*Ultimate Stenght*) (Kg)	6724,6	6691,8	5500,8
11	Beban Putus (*Fracture*) (Kg)	4199,2	4884,6	4447

POLITEKNIK NEGERI MALANG

Grafik Uji Tarik

V70/80A – 1

V70/80A – 2

V70/80A - 3

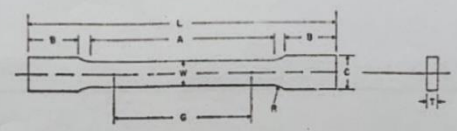
PENGUJIAN & PERAKITAN
LAB. BAHAN TEKNIK MESIN
POLITEKNIK NEGERI MALANG

DATA HASIL PENGUJIAN TARIK

Nama Peserta : Andriyas Novi Saputra (1.42.1900159)
Bayu Adi Firmansyah (1.42.1900165)
Material : Baja SS 400
Tanggal Pengujian : 17 Mei 2023
Perlakuan : Pengelasan dengan sudut kampuh V 70° Arus 90 Ampere

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	
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* (mm)	12,5	12,5	12,5
2	Tebal Beban *t* (mm)	10	10	10
3	Panjang Awal L_0 (mm)	200	200	200
4	Panjang Akhir L_f (mm)	236,45	219,98	210,1
5	Pertambahan Panjang ΔL (mm)	36,45	19,98	10,1
6	L_y (mm)	3,51	3,95	3,07
7	L_{max}(mm)	19,1	9	4,39
8	L_{putus}(mm)	34,03	17,12	9
9	Beban Luluh (*Yield Point*) (Kg)	3295,8	5371	3632,8
10	Beban Maksimum (*Ultimate Stenght*) (Kg)	5602,4	6374,8	5200,4
11	Beban Putus (*Fracture*) (Kg)	4604,2	5161	4146,8

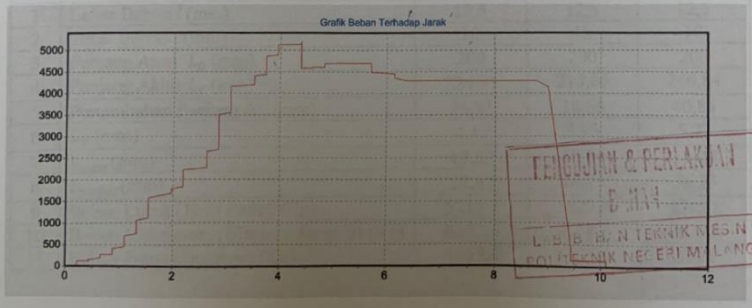
POLITEKNIK NEGERI MALANG

Grafik Uji Tarik

V70/90A – 1

V70/90A – 2

V70/90A – 3



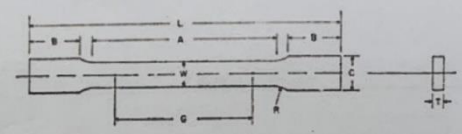
PENGUJIAN & PERLAKUAN
BAHAN
LABORATORIUM TEKNIK MESIN
POLITEKNIK NEGERI MALANG

DATA HASIL PENGUJIAN TARIK

Nama Peserta : Andriyas Novi Saputra (1.42.1900159)
Bayu Adi Firmansyah (1.42.1900165)
Material : Baja SS 400
Tanggal Pengujian : 17 Mei 2023
Perlakuan : Pengelasan dengan sudut kampuh V 70° Arus 100 Ampere

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	
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* (mm)	12,5	12,5	12,5
2	Tebal Beban *t* (mm)	10	10	10
3	Panjang Awal L_0 (mm)	200	200	200
4	Panjang Akhir L_f (mm)	224,81	218,66	240,84
5	Pertambahan Panjang ΔL (mm)	24,81	18,66	40,84
6	L_y (mm)	4,17	3,95	5,27
7	L_{max}(mm)	13,83	10,54	13,39
8	L_{putus}(mm)	22,61	16,03	36,23
9	Beban Luluh (*Yield Point*) (Kg)	5213,2	5629,8	5715,8
10	Beban Maksimum (*Ultimate Stenght*) (Kg)	6373,4	6558,6	6676,8
11	Beban Putus (*Fracture*) (Kg)	4859,4	6121,6	5510

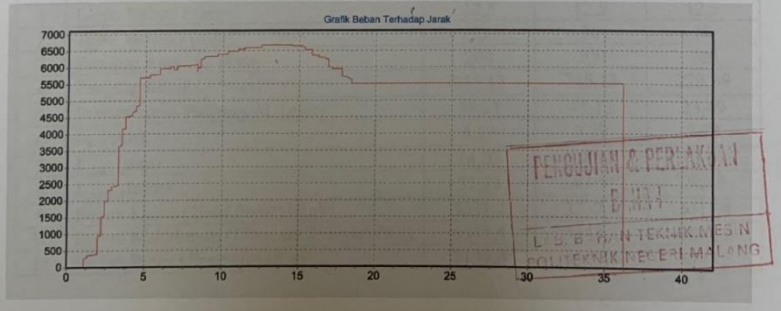
POLITEKNIK NEGERI MALANG

Grafik Uji Tarik

V70/100A – 1

V70/100A – 2

V70/100A - 3



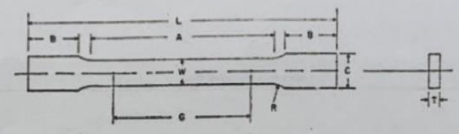
PENGUJIAN & PERAWATAN
BAHAN
LABORATORIUM TEKNIK MESIN
POLITEKNIK NEGERI MALANG

DATA HASIL PENGUJIAN TARIK

Nama Peserta	: Andriyas Novi Saputra	(1.42.1900159)
	Bayu Adi Firmansyah	(1.42.1900165)
Material	: Baja SS 400	
Tanggal Pengujian	: 17 Mei 2023	
Perlakuan	: Pengelasan dengan sudut kampuh V 80° Arus 80 Ampere	

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	
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* (mm)	12,5	12,5	12,5
2	Tebal Beban *t* (mm)	10	10	10
3	Panjang Awal L_0 (mm)	200	200	200
4	Panjang Akhir L_f (mm)	235,13	245,13	223,49
5	Pertambahan Panjang ΔL (mm)	35,13	45,13	23,49
6	L_y (mm)	4,17	3,29	3,73
7	L_{max}(mm)	14,05	19,54	12,07
8	L_{putus}(mm)	31,38	41,5	20,86
9	Beban Luluh (*Yield Point*) (Kg)	5531,4	3237,4	5411,8
10	Beban Maksimum (*Ultimate Stenght*) (Kg)	6641,4	5443,4	6692,2
11	Beban Putus (*Fracture*) (Kg)	5139,8	4404,6	4095,2

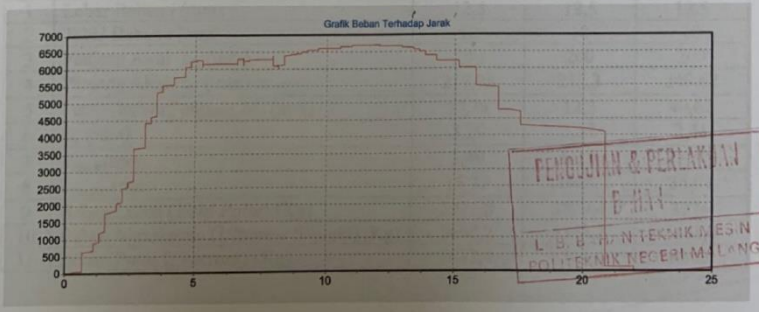
POLITEKNIK NEGERI MALANG

Grafik Uji Tarik

V80/80A – 1

V80/80A – 2

V80/80A – 3



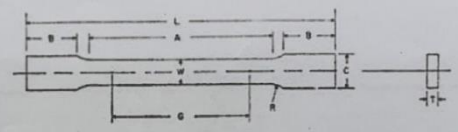
PENGUJIAN & PERLAKUAN
BAHAN
LABORATORIUM TEKNIK MESIN
POLITEKNIK NEGERI MALANG

DATA HASIL PENGUJIAN TARIK

Nama Peserta : Andriyas Novi Saputra (1.42.1900159)
Bayu Adi Firmansyah (1.42.1900165)
Material : Baja SS 400
Tanggal Pengujian : 17 Mei 2023
Perlakuan : Pengelasan dengan sudut kampuh V 80° Arus 90 Ampere

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	
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* (mm)	12,5	12,5	12,5
2	Tebal Beban *t* (mm)	10	10	10
3	Panjang Awal L_0 (mm)	200	200	200
4	Panjang Akhir L_f (mm)	217,78	212,3	240,62
5	Pertambahan Panjang ΔL (mm)	17,78	12,3	40,62
6	L_y (mm)	3,29	3,52	2,41
7	L_{max}(mm)	5,49	6,15	18,44
8	L_{putus}(mm)	15,37	10,32	36,01
9	Beban Luluh (*Yield Point*) (Kg)	2971,8	3529,4	3276
10	Beban Maksimum (*Ultimate Stenght*) (Kg)	5698,2	5344,2	5461,4
11	Beban Putus (*Fracture*) (Kg)	4632,4	4564,6	4388

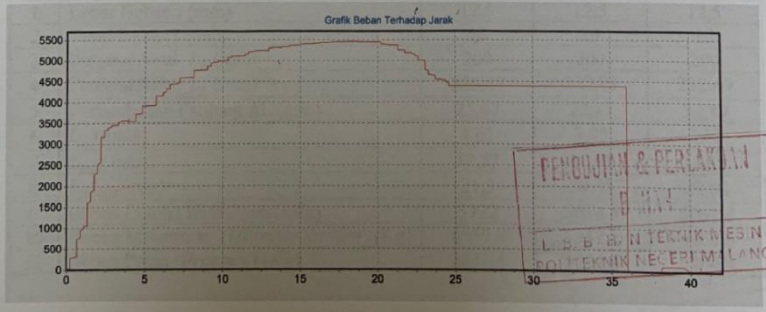
POLITEKNIK NEGERI MALANG

Grafik Uji Tarik

V80/90A – 1

V80/90A – 2

V80/90A – 3



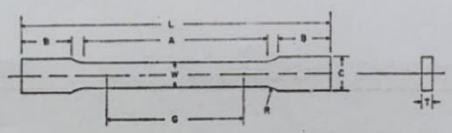
PENGUJIAN & PERLAKUAN
L. B. B. AN TEKNIK MESIN
POLITEKNIK NEGERI MALANG

DATA HASIL PENGUJIAN TARIK

Nama Peserta : Andriyas Novi Saputra (1.42.1900159)
Bayu Adi Firmansyah (1.42.1900165)
Material : Baja SS 400
Tanggal Pengujian : 17 Mei 2023
Perlakuan : Pengelasan dengan sudut kampuh V 80° Arus 100 Ampere

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	
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* (mm)	12,5	12,5	12,5
2	Tebal Beban *t* (mm)	10	10	10
3	Panjang Awal L_0 (mm)	200	200	200
4	Panjang Akhir L_f (mm)	225,47	222,83	232,49
5	Pertambahan Panjang ΔL (mm)	25,47	22,83	32,49
6	L_y (mm)	4,61	3,95	4,17
7	L_{max}(mm)	12,52	11,41	13,16
8	L_{putus}(mm)	21,3	20,42	29,64
9	Beban Luluh (*Yield Point*) (Kg)	5722	5014,4	5061,4
10	Beban Maksimum (*Ultimate Stenght*) (Kg)	6459,8	6357,2	6264,6
11	Beban Putus (*Fracture*) (Kg)	5239,4	5344,4	5200,4

POLITEKNIK NEGERI MALANG

Grafik Uji Tarik

V80/100A – 1

V80/100A – 2

V80/100A – 3

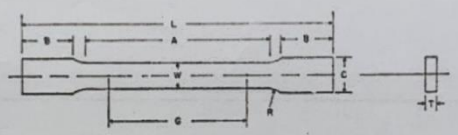
PENGUJIAN & PERLAKUAN
LAB. BAHAN TEKNIK MESIN
POLITEKNIK NEGERI MALANG

DATA HASIL PENGUJIAN TARIK

Nama Peserta : Andriyas Novi Saputra (1.42.1900159)
Bayu Adi Firmansyah (1.42.1900165)
Material : Baja SS 400
Tanggal Pengujian : 17 Mei 2023
Perlakuan : Pengelasan dengan sudut kampuh V 90° Arus 80 Ampere

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	
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* (mm)	12,5	12,5	12,5
2	Tebal Beban *t* (mm)	10	10	10
3	Panjang Awal L_0 (mm)	200	200	200
4	Panjang Akhir L_f (mm)	237,33	231,84	217,13
5	Pertambahan Panjang ΔL (mm)	37,33	31,84	17,13
6	L_y (mm)	5,27	3,73	1,32
7	L_{max}(mm)	11,42	18,22	5,49
8	L_{putus}(mm)	33,37	27,44	14,71
9	Beban Luluh (*Yield Point*) (Kg)	5710,2	3433,2	672
10	Beban Maksimum (*Ultimate Stenght*) (Kg)	6454,8	5391,6	5505,4
11	Beban Putus (*Fracture*) (Kg)	4019,8	4301,6	4301,6

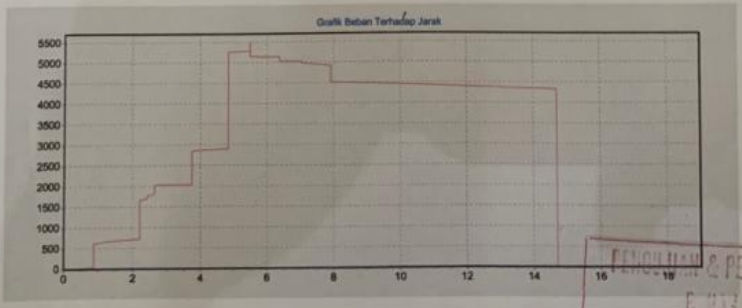
POLITEKNIK NEGERI MALANG

Grafik Uji Tarik

V90/80A – 1

V90/80A – 2

V90/80A – 3



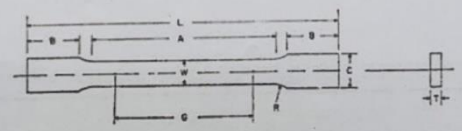
PERPUSTAKAAN & PERLAKUAN
D-IV
LABORATORIUM TEKNIK MESIN
POLITEKNIK NEGERI MALANG

DATA HASIL PENGUJIAN TARIK

Nama Peserta : Andriyas Novi Saputra (1.42.1900159)
Bayu Adi Firmansyah (1.42.1900165)
Material : Baja SS 400
Tanggal Pengujian : 17 Mei 2023
Perlakuan : Pengelasan dengan sudut kampuh V 90° Arus 90 Ampere

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	
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]

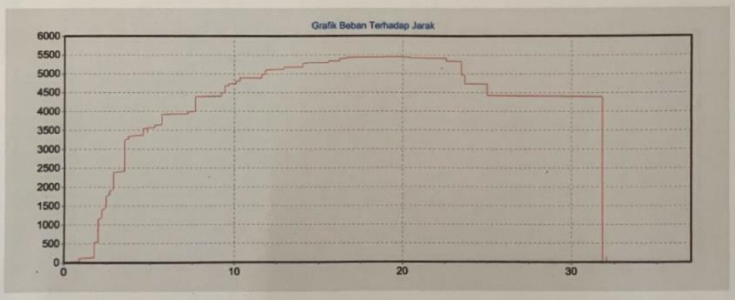
No.	Keterangan	Spesimen 1	Spesimen 2	Spesimen 3
1	Lebar Beban *i* (mm)	12,5	12,5	12,5
2	Tebal Beban *t* (mm)	10	10	10
3	Panjang Awal L_0 (mm)	200	200	200
4	Panjang Akhir L_f (mm)	223,49	236,88	211,85
5	Pertambahan Panjang ΔL (mm)	23,49	36,88	11,85
6	L_y (mm)	4,83	3,95	2,42
7	L_{max}(mm)	11,19	19,76	6,15
8	L_{putus}(mm)	20,42	31,83	10,32
9	Beban Luluh (*Yield Point*) (Kg)	4508,6	3349,2	1712,6
10	Beban Maksimum (*Ultimate Stenght*) (Kg)	6356	5451,4	5371,4
11	Beban Putus (*Fracture*) (Kg)	6283,2	4348,2	4700,2

POLITEKNIK NEGERI MALANG

Grafik Uji Tarik

V90/90A – 1

V90/90A – 2



V90/90A – 3

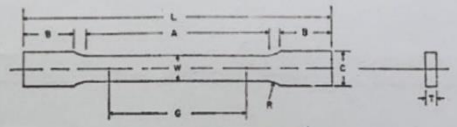
PENGUJIAN & PERLAKUAN
LAB. BAHAN TEKNIK MESIN
POLITEKNIK NEGERI MALANG

DATA HASIL PENGUJIAN TARIK

Nama Peserta : Andriyas Novi Saputra (1.42.1900159)
Bayu Adi Firmansyah (1.42.1900165)
Material : Baja SS 400
Tanggal Pengujian : 17 Mei 2023
Perlakuan : Pengelasan dengan sudut kampuh V 90° Arus 100 Ampere

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	
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* (mm)	12,5	12,5	12,5
2	Tebal Beban *t* (mm)	10	10	10
3	Panjang Awal L_0 (mm)	200	200	200
4	Panjang Akhir L_f (mm)	222,39	232,93	228,54
5	Pertambahan Panjang ΔL (mm)	22,39	32,93	28,54
6	L_y (mm)	5,49	4,83	4,39
7	L_{max}(mm)	12,51	12,95	12,07
8	L_{putus}(mm)	20,2	27,44	23,71
9	Beban Luluh (*Yield Point*) (Kg)	5786,2	5283,4	5137,6
10	Beban Maksimum (*Ultimate Stenght*) (Kg)	6273,8	6331	6182,6
11	Beban Putus (*Fracture*) (Kg)	4780,2	3881,8	3780,2

POLITEKNIK NEGERI MALANG

Grafik Uji Tarik

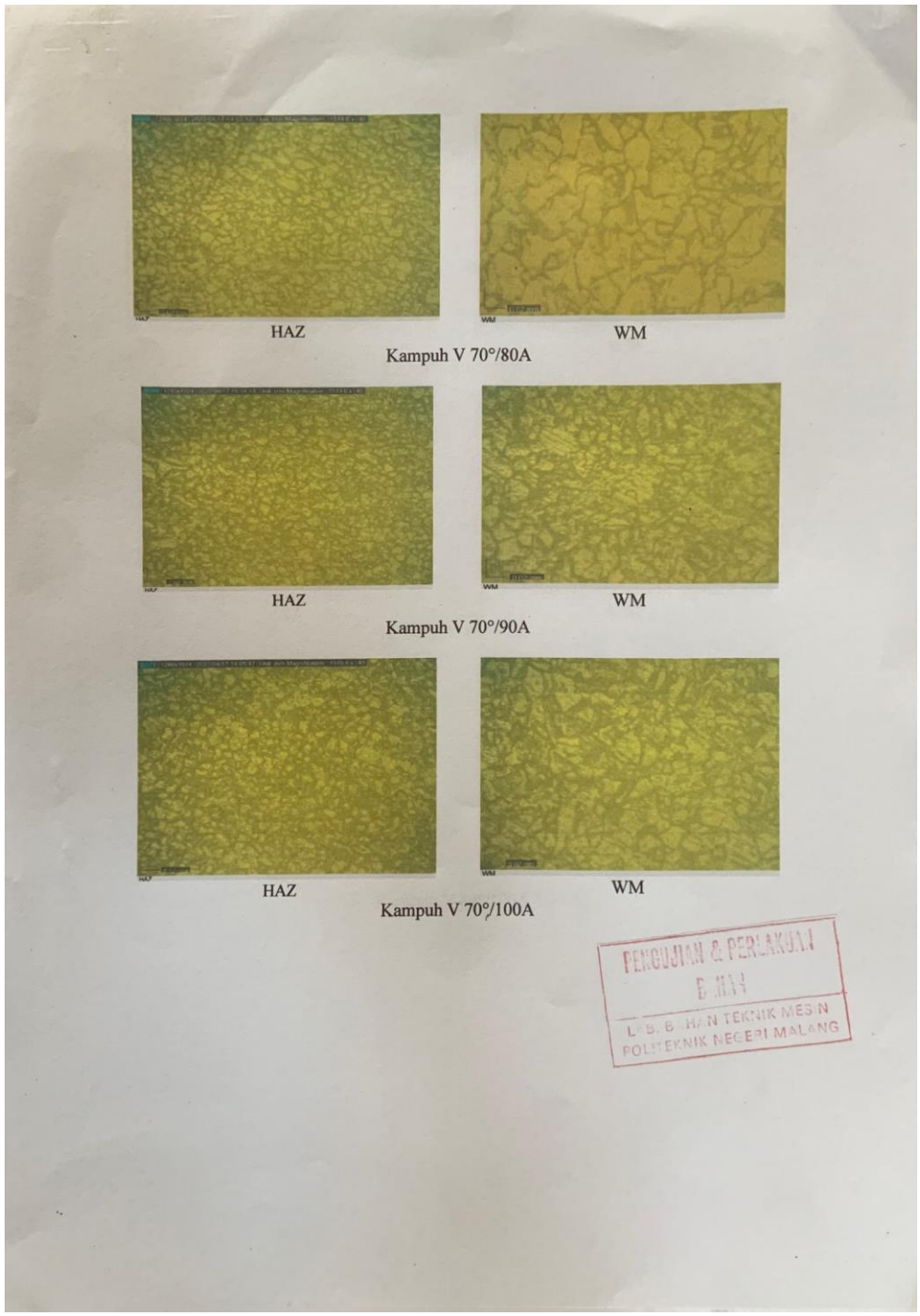
V90/100A – 1

V90/100A – 2

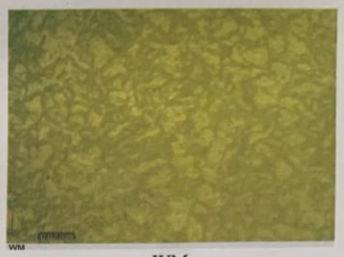
V90/100A – 3

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

Data Uji Struktur Mikro

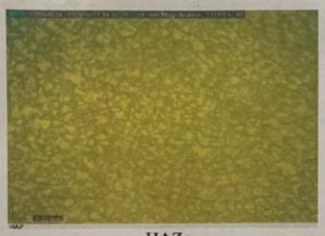


HAZ



WM

Kampuh V 80°/80A



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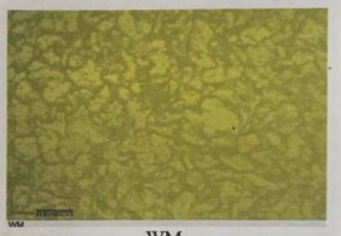
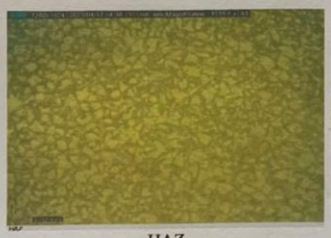


WM

Kampuh V 80°/90A



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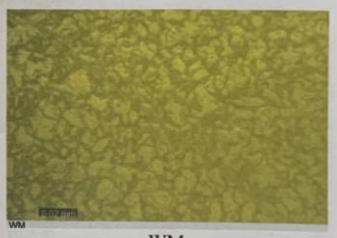
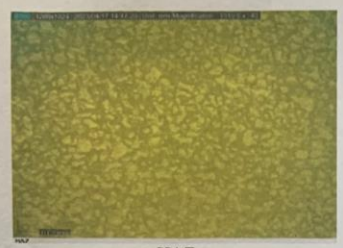


WM

Kampuh V 80°/100A

PENGUJIAN & PERLAKUAN
B. MTY
LAB. BAHAN TEKNIK MESIN
POLITEKNIK NEGERI MALANG



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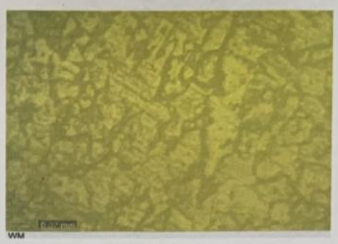
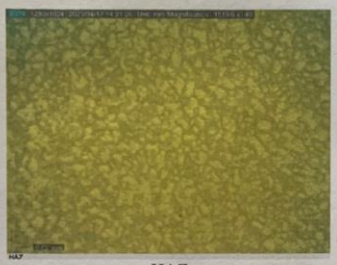


WM

Kampuh V 90°/80A



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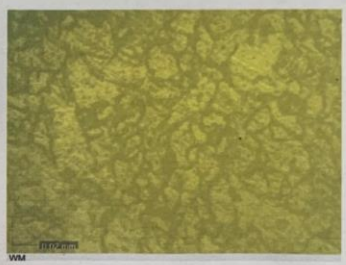
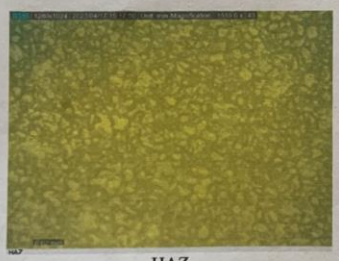


WM

Kampuh V 90°/90A



HAZ

WM

Kampuh V 90°/100A

PENGUJIAN & PERLAKUAN
B...TA
LAB. BAHAN TEKNIK MESIN
POLITEKNIK NEGERI MALANG