

1. Dokumentasi Proses Pembuatan Alat dan Pengambilan Data Minitab



Proses Pembubutan Poros



Proses Perakitan Alat



Proses Pengelasan Gesek



Proses Pemanasan Spesimen



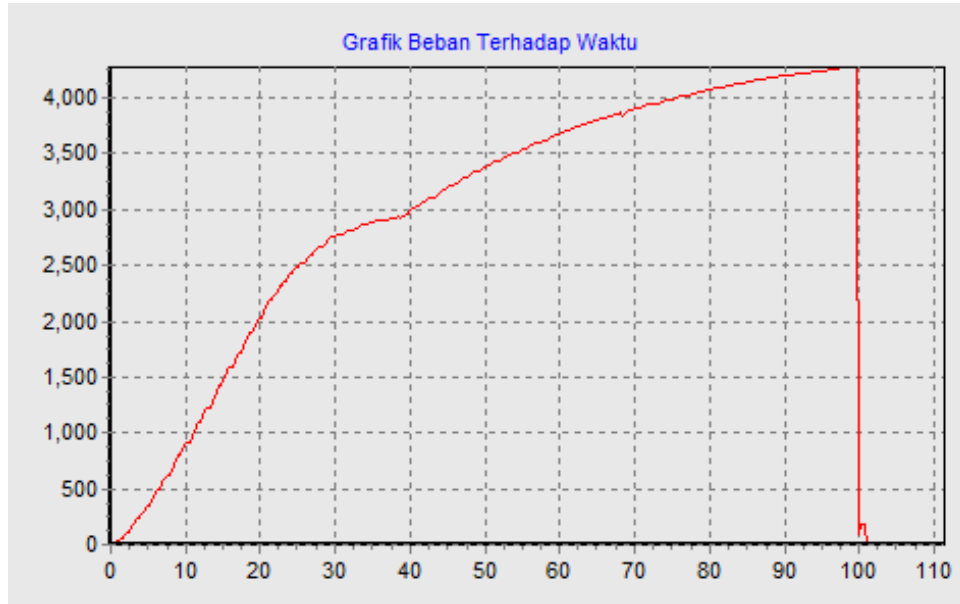




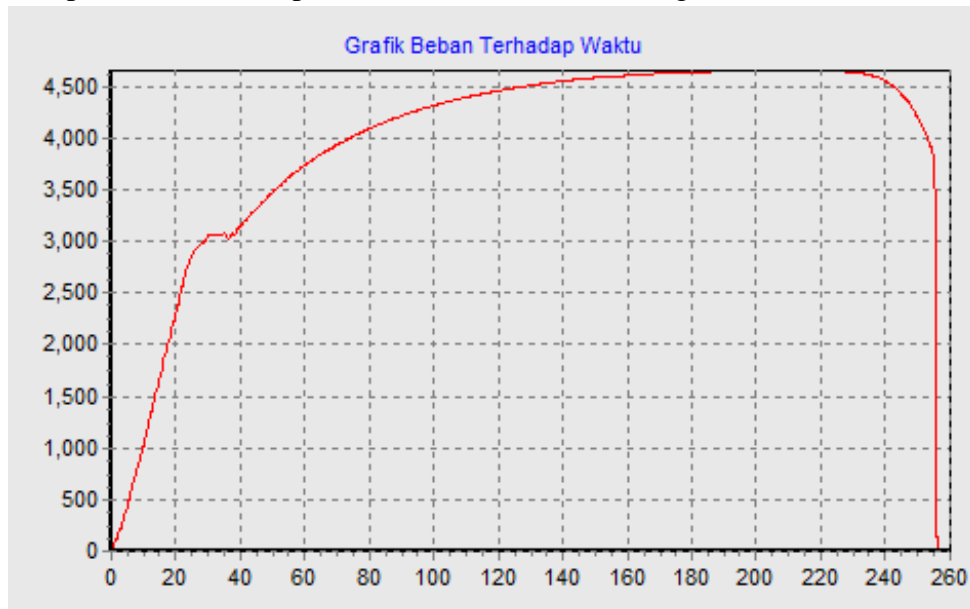
Proses pengujian tarik

2. Grafik Hasil Pengujian Tarik

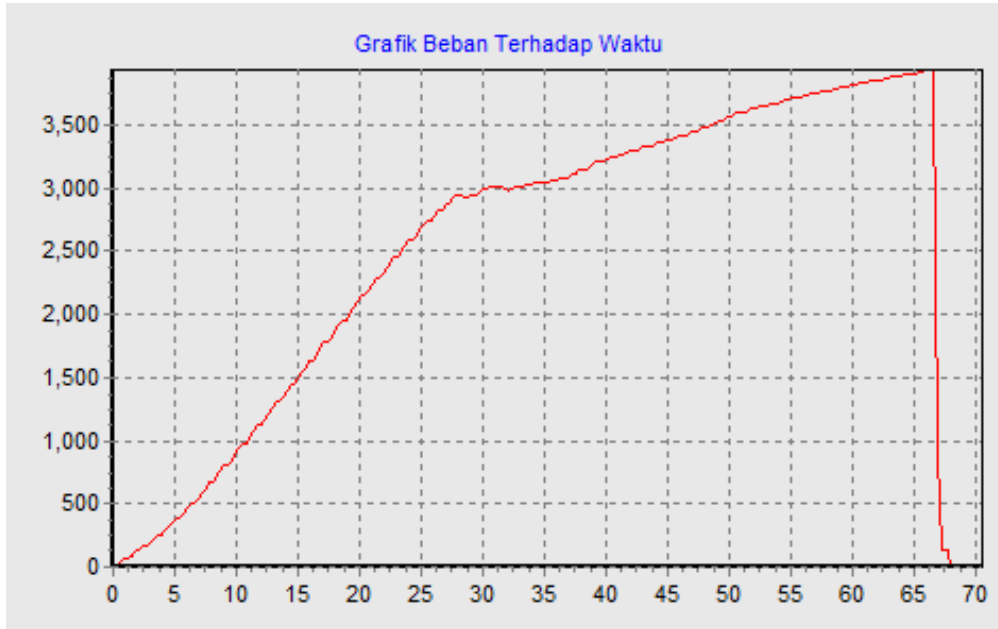
- a. Grafik hasil pengujian tarik spesimen satu
(penekanan 1 bar, pemanasan 150°C, dan holding 5 menit)



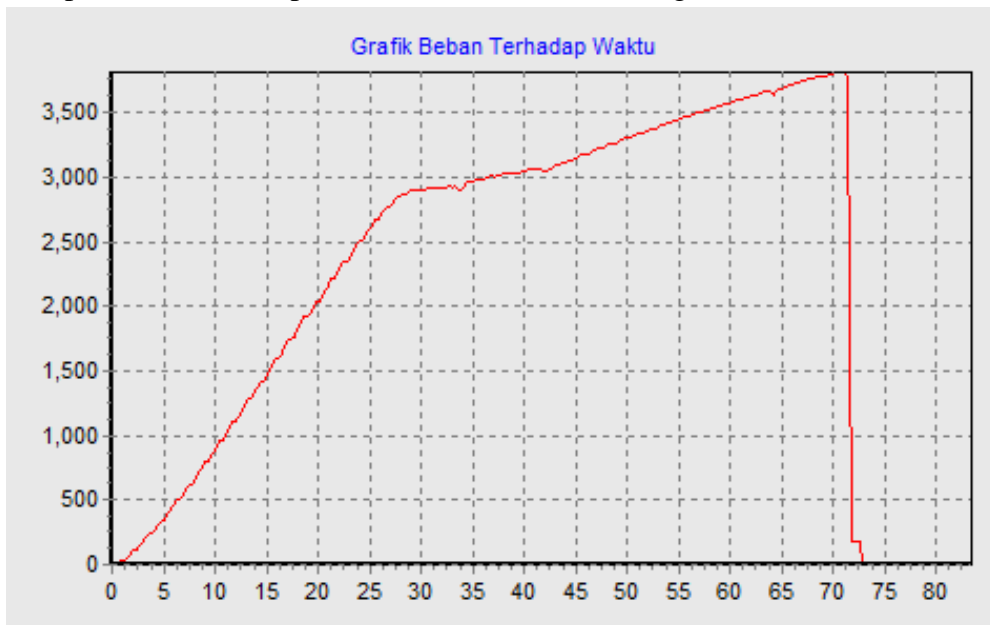
- b. Grafik hasil pengujian tarik spesimen dua
(penekanan 1 bar, pemanasan 200°C, dan holding 10 menit)



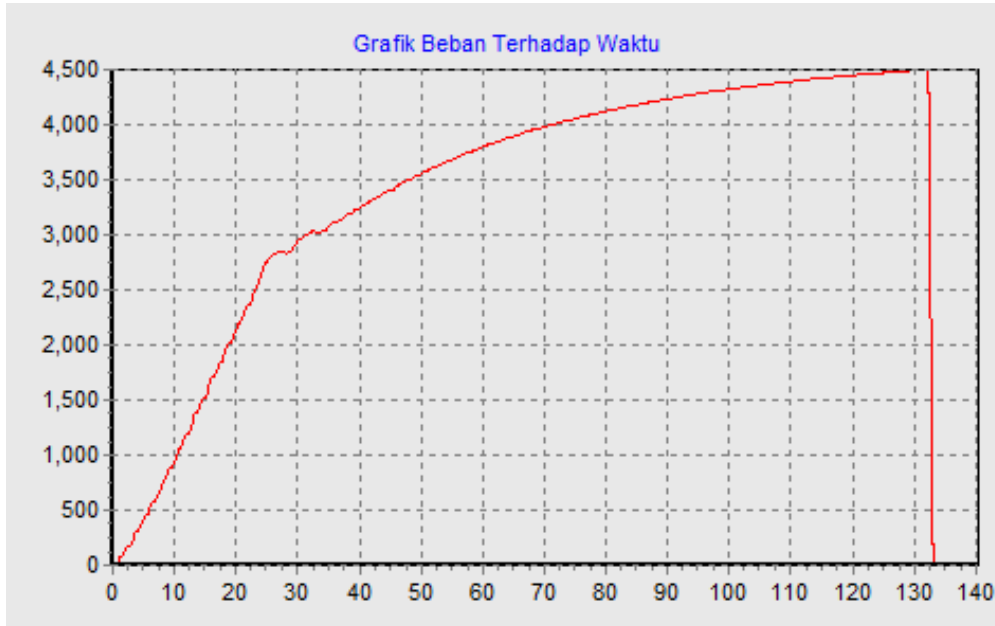
- c. Grafik hasil pengujian tarik spesimen tiga
(penekanan 1 bar, pemanasan 250°C, dan holding 15 menit)



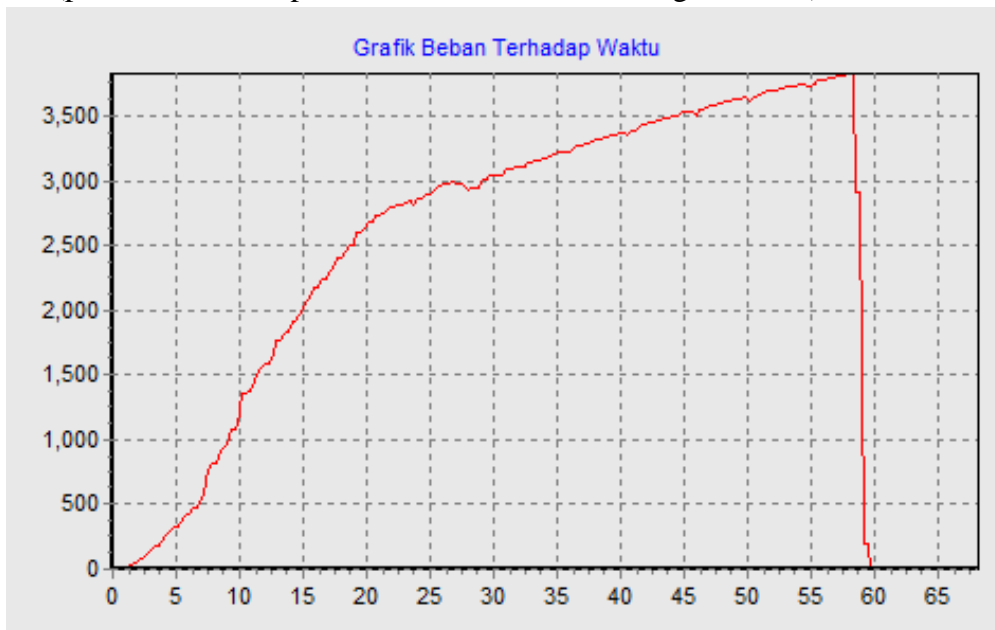
- d. Grafik hasil pengujian tarik spesimen empat
(penekanan 2 bar, pemanasan 150°C, dan holding 15 menit)



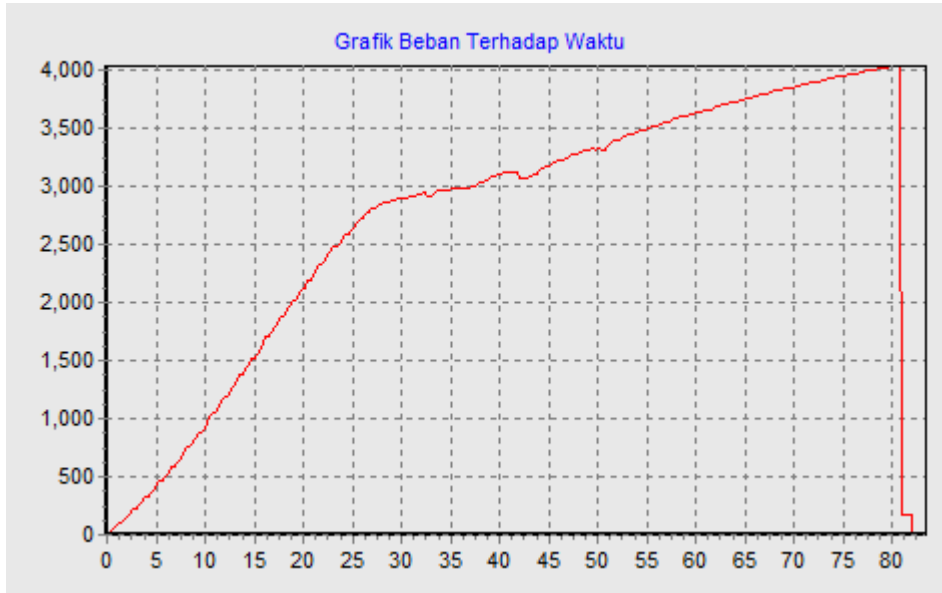
- e. Grafik hasil pengujian tarik spesimen lima
(penekanan 2 bar, pemanasan 200°C, dan holding 5 menit)



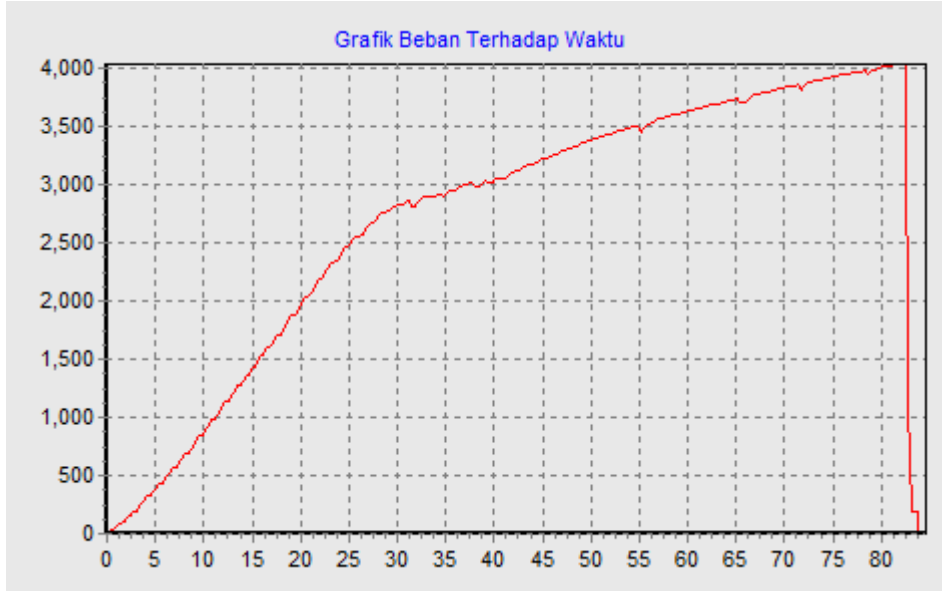
- f. Grafik hasil pengujian tarik spesimen enam
(penekanan 2 bar, pemanasan 250°C, dan holding 10 menit)



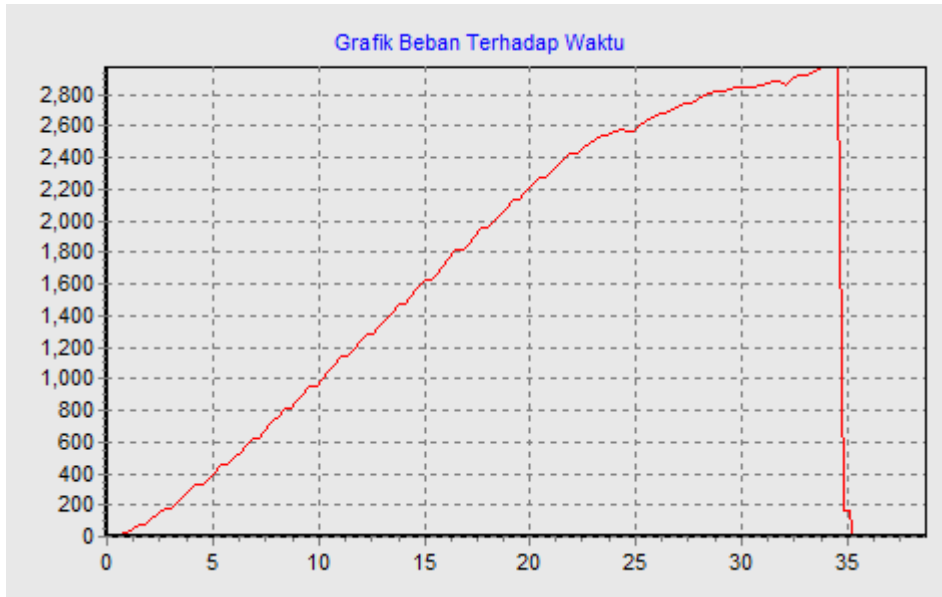
- g. Grafik hasil pengujian tarik spesimen tujuh
(penekanan 3 bar, pemanasan 150°C, dan holding 10 menit)



- h. Grafik hasil pengujian tarik spesimen delapan
(penekanan 3 bar, pemanasan 200°C, dan holding 15 menit)

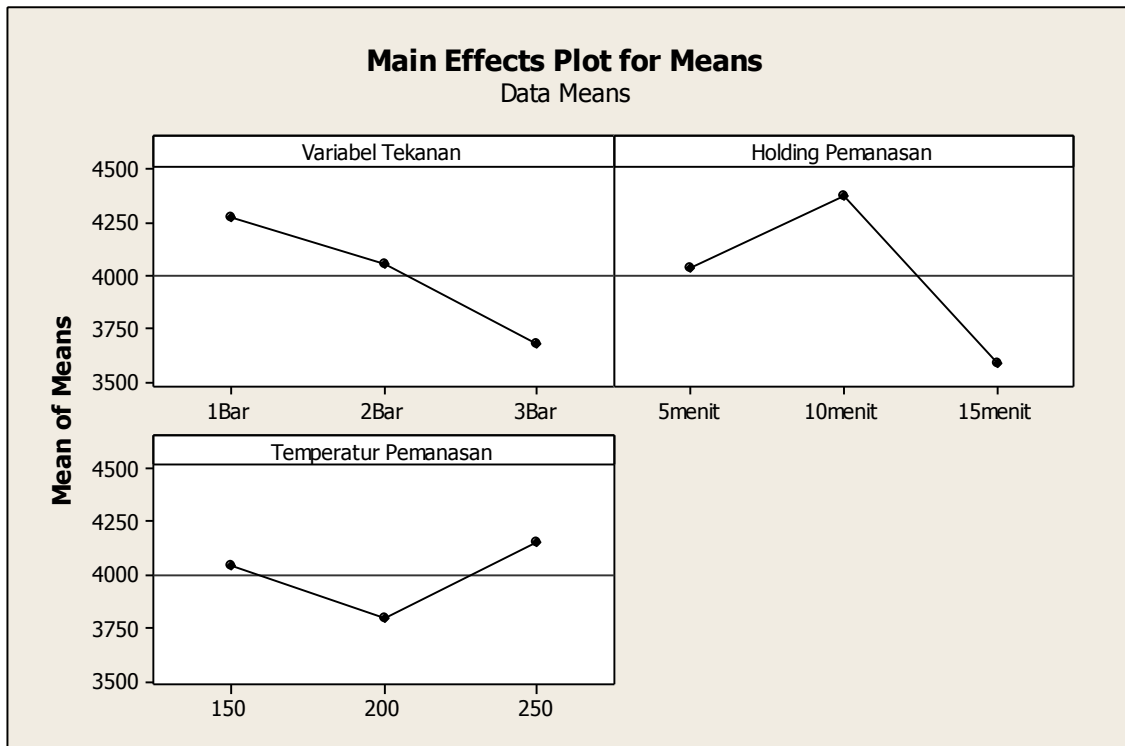


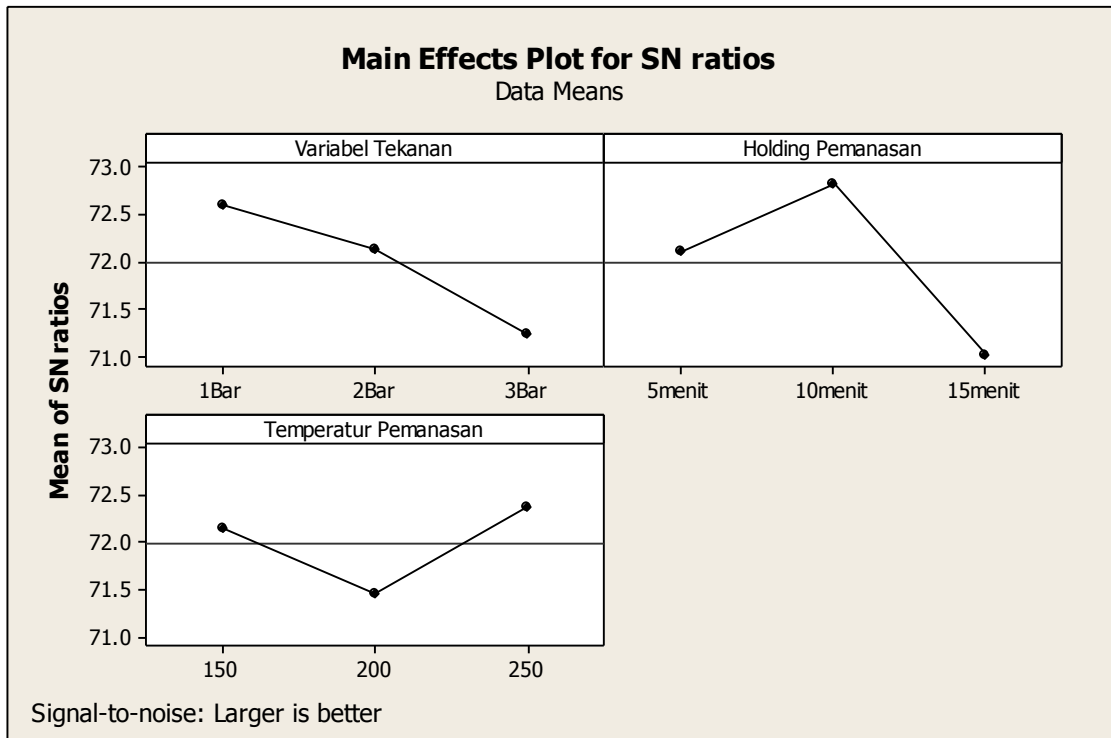
- i. Grafik hasil pengujian tarik spesimen sembilan (penekanan 3 bar, pemanasan 250°C, dan holding 5 menit)



3. Analisis Taguchi untuk Data Uji Tarik 1, 2, dan 3.

- a. Analisis Taguchi Data Uji Tarik 1





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Taguchi Design

Taguchi Orthogonal Array Design

L9(3**3)

Factors: 3
Runs: 9

Columns of L9(3**4) Array

1 2 3

Taguchi Analysis: Uji TARIK 1 versus Variabel Tek, Holding Pema, Temperatur P

Response Table for Signal to Noise Ratios
Larger is better

Level	Variabel Tekanan	Holding Pemanasan	Temperatur Pemanasan
1	72.60	72.11	72.14
2	72.13	72.82	71.45
3	71.23	71.02	72.36
Delta	1.37	1.80	0.91
Rank	2	1	3

Response Table for Means

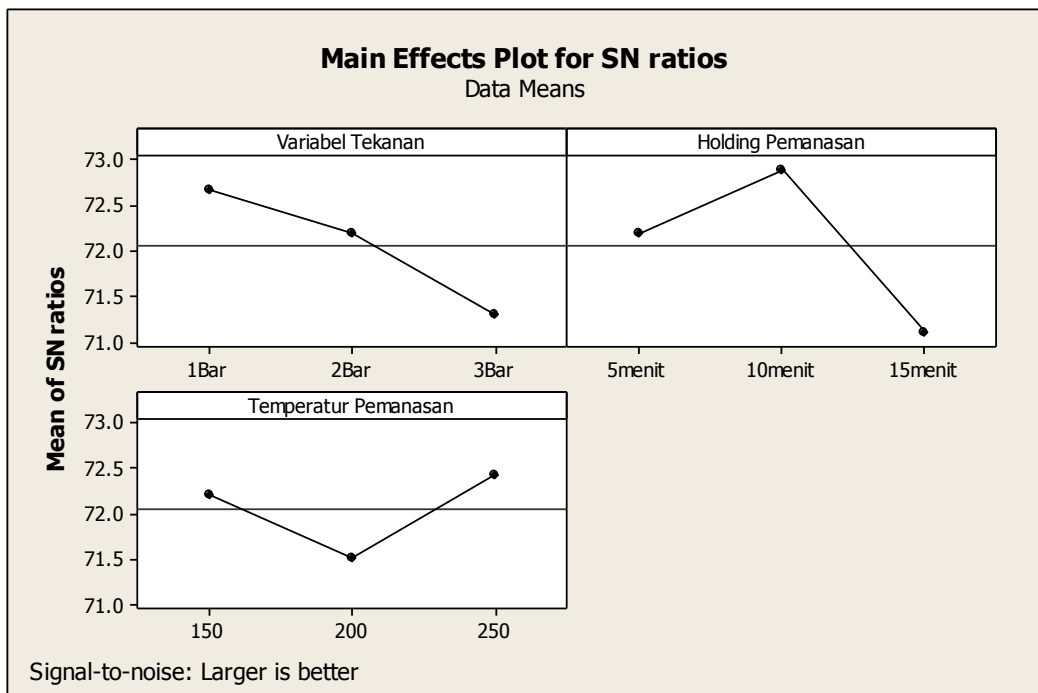
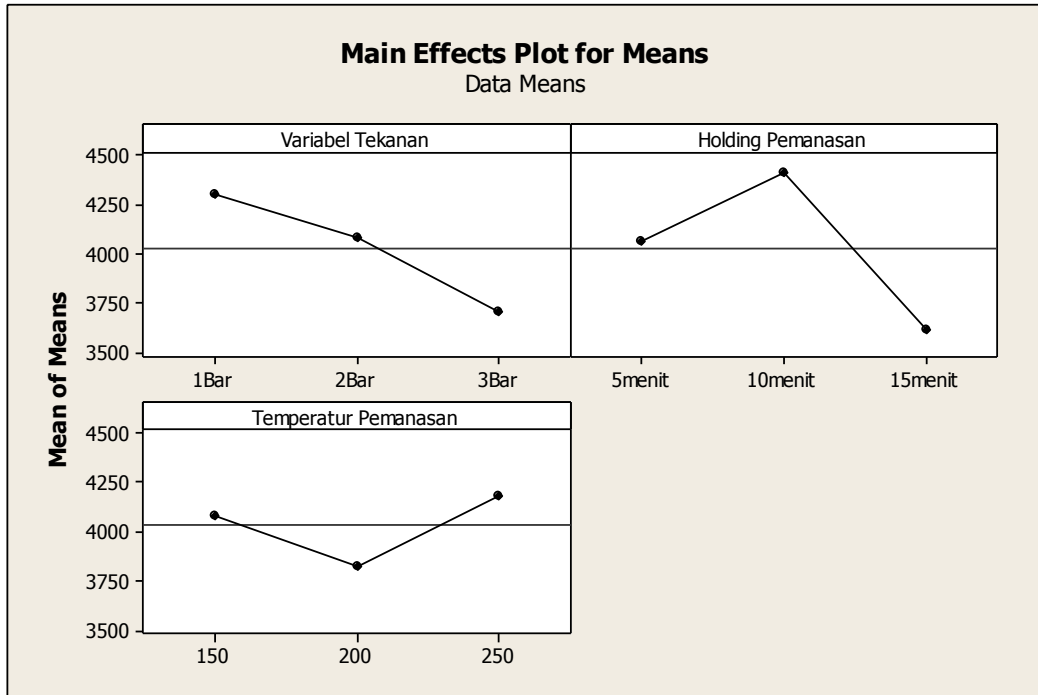
Level	Variabel Tekanan	Holding Pemanasan	Temperatur Pemanasan
1	4273	4038	4049
2	4052	4382	3798
3	3679	3583	4157

Delta	594	799	359
Rank	2	1	3

Main Effects Plot for Means

Main Effects Plot for SN ratios

b. Analisis Taguchi Data Uji Tarik 2



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Taguchi Design

Taguchi Orthogonal Array Design

L9(3**3)

Factors: 3
Runs: 9

Columns of L9(3**4) Array

1 2 3

Taguchi Analysis: UJI TARIK 2 versus Variabel Tek, Holding Pema, Temperatur P

Response Table for Signal to Noise Ratios
Larger is better

Level	Variabel Tekanan	Holding Pemanasan	Temperatur Pemanasan
1	72.66	72.18	72.20
2	72.19	72.88	71.53
3	71.30	71.09	72.42
Delta	1.36	1.79	0.90
Rank	2	1	3

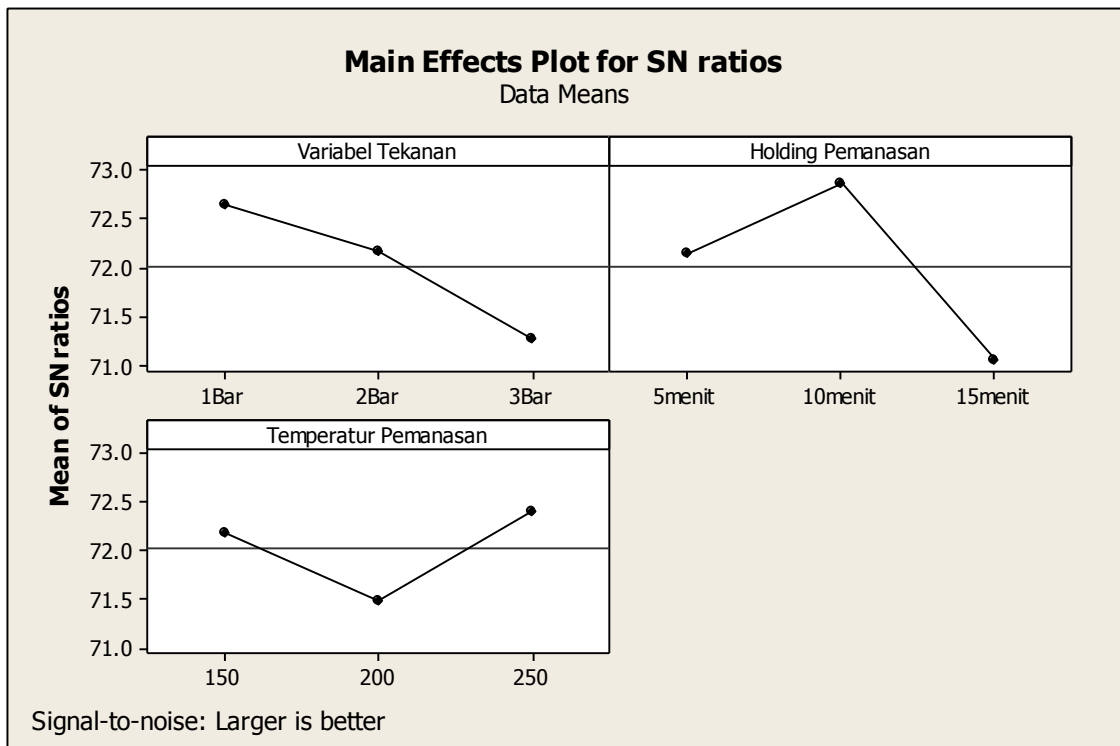
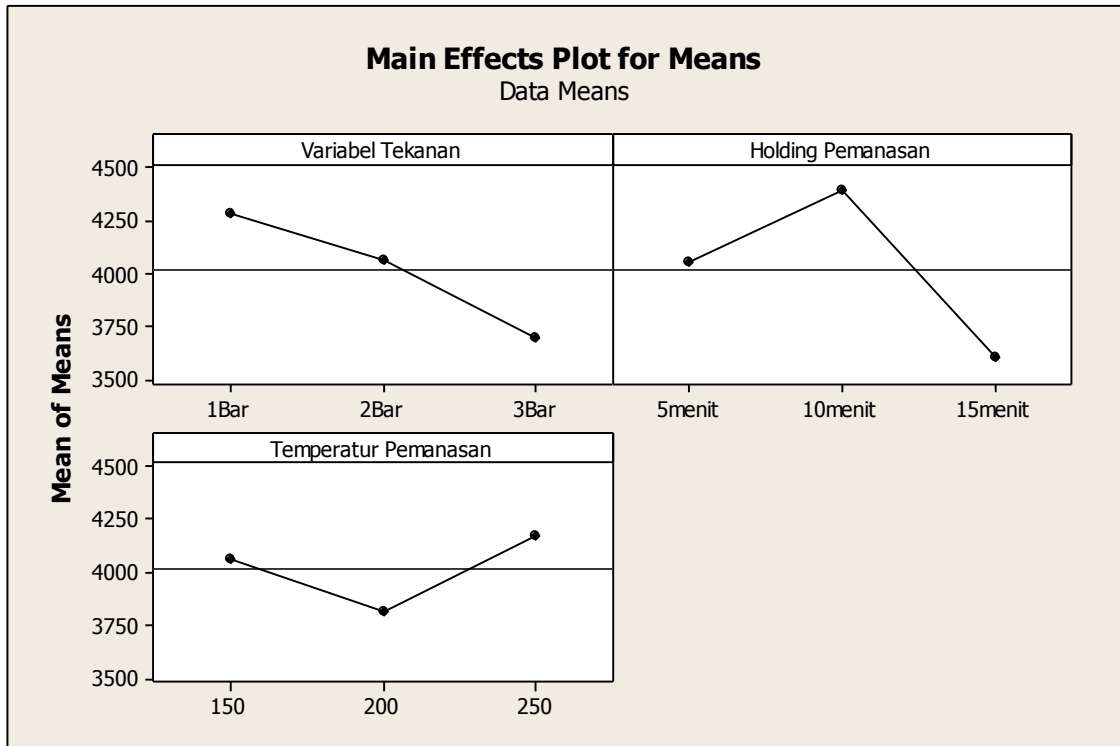
Response Table for Means

Level	Variabel Tekanan	Holding Pemanasan	Temperatur Pemanasan
1	4304	4069	4080
2	4083	4413	3829
3	3710	3614	4188
Delta	594	799	359
Rank	2	1	3

Main Effects Plot for Means

Main Effects Plot for SN ratios

c. Analisis Taguchi Data Uji Tarik 3



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Taguchi Design

Taguchi Orthogonal Array Design

L9(3**3)

Factors: 3
Runs: 9

Columns of L9(3**4) Array

1 2 3

Taguchi Analysis: UJI TARIK 3 versus Variabel Tek, Holding Pema, Temperatur P

Response Table for Signal to Noise Ratios
Larger is better

Level	Variabel Tekanan	Holding Pemanasan	Temperatur Pemanasan
1	72.63	72.15	72.17
2	72.16	72.85	71.49
3	71.27	71.06	72.40
Delta	1.36	1.79	0.90
Rank	2	1	3

Response Table for Means

Level	Variabel Tekanan	Holding Pemanasan	Temperatur Pemanasan
1	4290	4055	4066
2	4069	4399	3815
3	3696	3600	4174
Delta	594	799	359
Rank	2	1	3

Main Effects Plot for Means

Main Effects Plot for SN ratios