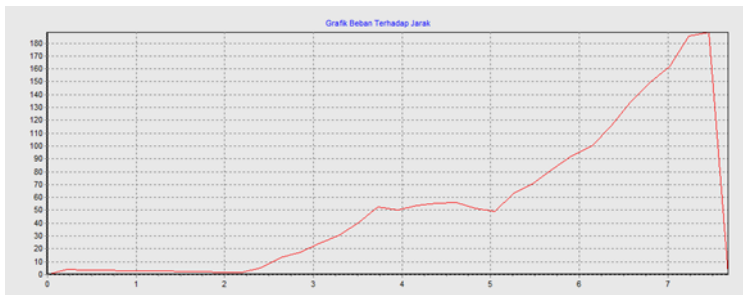
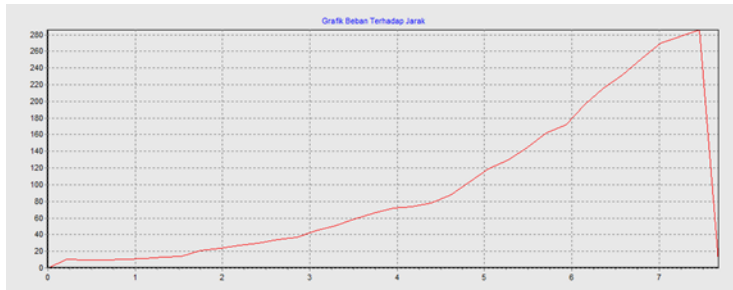
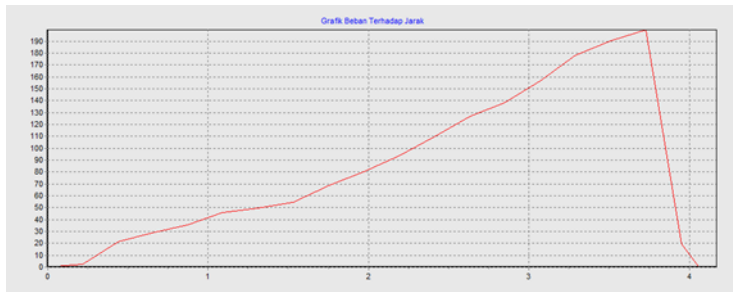
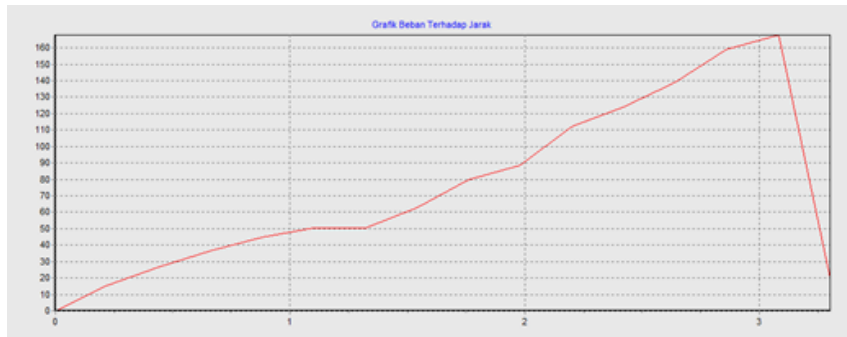


LAMPIRAN







Tegangan tarik 10% (σ)

$$\begin{aligned}
 A1 &: \sigma_t = \frac{F}{A} = \frac{F}{t \cdot W_o} = \frac{1,98}{54,65} = 36,24 \text{ Mpa} \\
 A2 &: \sigma_t = \frac{F}{A} = \frac{F}{t \cdot W_o} = \frac{2,83}{64,78} = 43,68 \text{ Mpa} \\
 A3 &: \sigma_t = \frac{F}{A} = \frac{F}{t \cdot W_o} = \frac{1,44}{51,87} = 27,77 \text{ Mpa} \\
 B1 &: \sigma_t = \frac{F}{A} = \frac{F}{t \cdot W_o} = \frac{1,91}{54,9} = 34,80 \text{ Mpa} \\
 B2 &: \sigma_t = \frac{F}{A} = \frac{F}{t \cdot W_o} = \frac{1,89}{56,19} = 33,64 \text{ Mpa} \\
 B3 &: \sigma_t = \frac{F}{A} = \frac{F}{t \cdot W_o} = \frac{1,68}{57,66} = 29,14 \text{ Mpa} \\
 C1 &: \sigma_t = \frac{F}{A} = \frac{F}{t \cdot W_o} = \frac{3,35}{64,37} = 52,06 \text{ Mpa} \\
 C2 &: \sigma_t = \frac{F}{A} = \frac{F}{t \cdot W_o} = \frac{2,00}{67,5} = 29,64 \text{ Mpa} \\
 C3 &: \sigma_t = \frac{F}{A} = \frac{F}{t \cdot W_o} = \frac{1,69}{85,25} = 19,83 \text{ Mpa}
 \end{aligned}$$

Tegangan tarik 20% (σ)

$$\begin{aligned}
 A1 &: \sigma_t = \frac{F}{A} = \frac{F}{t \cdot W_o} = \frac{1,73}{69,76} = 24,80 \text{ Mpa} \\
 A2 &: \sigma_t = \frac{F}{A} = \frac{F}{t \cdot W_o} = \frac{1,52}{69,59} = 21,85 \text{ Mpa} \\
 A3 &: \sigma_t = \frac{F}{A} = \frac{F}{t \cdot W_o} = \frac{1,63}{66,56} = 24,50 \text{ Mpa} \\
 B1 &: \sigma_t = \frac{F}{A} = \frac{F}{t \cdot W_o} = \frac{1,06}{60,48} = 1,06 \text{ Mpa} \\
 B2 &: \sigma_t = \frac{F}{A} = \frac{F}{t \cdot W_o} = \frac{1,27}{56,7} = 22,35 \text{ Mpa} \\
 B3 &: \sigma_t = \frac{F}{A} = \frac{F}{t \cdot W_o} = \frac{0,67}{75,28} = 8,90 \text{ Mpa} \\
 C1 &: \sigma_t = \frac{F}{A} = \frac{F}{t \cdot W_o} = \frac{1,16}{80,5} = 14,40 \text{ Mpa} \\
 C2 &: \sigma_t = \frac{F}{A} = \frac{F}{t \cdot W_o} = \frac{2,12}{86,87} = 24,40 \text{ Mpa} \\
 C3 &: \sigma_t = \frac{F}{A} = \frac{F}{t \cdot W_o} = \frac{2,67}{98,02} = 27,23 \text{ Mpa}
 \end{aligned}$$

Tegangan tarik 30% (σ)

$$\begin{aligned}
 A1 & : \sigma_t = \frac{F}{A} = \frac{F}{L \cdot W_0} = \frac{1,42}{53,72} = 26,43 \text{ Mpa} \\
 A2 & : \sigma_t = \frac{F}{A} = \frac{F}{L \cdot W_0} = \frac{1,44}{53,72} = 26,80 \text{ Mpa} \\
 A3 & : \sigma_t = \frac{F}{A} = \frac{F}{L \cdot W_0} = \frac{0,65}{53,73} = 12,09 \text{ Mpa} \\
 B1 & : \sigma_t = \frac{F}{A} = \frac{F}{L \cdot W_0} = \frac{1,01}{49,40} = 52,06 \text{ Mpa} \\
 B2 & : \sigma_t = \frac{F}{A} = \frac{F}{L \cdot W_0} = \frac{1,37}{56,69} = 24,16 \text{ Mpa} \\
 B3 & : \sigma_t = \frac{F}{A} = \frac{F}{L \cdot W_0} = \frac{0,62}{80,86} = 7,74 \text{ Mpa} \\
 C1 & : \sigma_t = \frac{F}{A} = \frac{F}{L \cdot W_0} = \frac{0,62}{57,95} = 10,70 \text{ Mpa} \\
 C2 & : \sigma_t = \frac{F}{A} = \frac{F}{L \cdot W_0} = \frac{0,62}{56,14} = 11,57 \text{ Mpa} \\
 C3 & : \sigma_t = \frac{F}{A} = \frac{F}{L \cdot W_0} = \frac{1,09}{95,47} = 11,47 \text{ Mpa}
 \end{aligned}$$

Regangan Tarik 10% (ϵ)

$$\begin{aligned}
 A1 & : \epsilon_t = \frac{\Delta L}{L_0} = \frac{1}{50} \times 100 = 2\% \\
 A2 & : \epsilon_t = \frac{\Delta L}{L_0} = \frac{1,15}{50} \times 100 = 2,3\% \\
 A3 & : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,25}{50} \times 100 = 0,5\% \\
 B1 & : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,55}{50} \times 100 = 1,1\% \\
 B2 & : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,50}{50} \times 100 = 0,7\% \\
 B3 & : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,35}{50} \times 100 = 0,7\% \\
 C1 & : \epsilon_t = \frac{\Delta L}{L_0} = \frac{1,50}{50} \times 100 = 3\% \\
 C2 & : \epsilon_t = \frac{\Delta L}{L_0} = \frac{1,20}{50} \times 100 = 2,4\% \\
 C3 & : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,40}{50} \times 100 = 0,8\%
 \end{aligned}$$

Regangan Tarik 20%

$$A1 : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,45}{50} \times 100 = 0,9\%$$

$$A2 : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,20}{50} \times 100 = 0,4\%$$

$$A3 : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,30}{50} \times 100 = 0,6\%$$

$$B1 : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,15}{50} \times 100 = 0,3\%$$

$$B2 : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,18}{50} \times 100 = 0,36\%$$

$$B3 : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,10}{50} \times 100 = 0,2\%$$

$$C1 : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,13}{50} \times 100 = 0,26\%$$

$$C2 : \epsilon_t = \frac{\Delta L}{L_0} = \frac{1}{50} \times 100 = 2\%$$

$$C3 : \epsilon_t = \frac{\Delta L}{L_0} = \frac{1,10}{50} \times 100 = 2,2\%$$

Regangan Tarik 30%

$$A1 : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,23}{50} \times 100 = 0,46\%$$

$$A2 : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,25}{50} \times 100 = 0,5\%$$

$$A3 : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,11}{50} \times 100 = 0,22\%$$

$$B1 : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,13}{50} \times 100 = 0,26\%$$

$$B2 : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,14}{50} \times 100 = 0,28\%$$

$$B3 : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,17}{50} \times 100 = 0,34\%$$

$$C1 : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,16}{50} \times 100 = 0,32\%$$

$$C2 : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,18}{50} \times 100 = 0,36\%$$

$$C3 : \epsilon_t = \frac{\Delta L}{L_0} = \frac{0,19}{50} \times 100 = 0,38\%$$

Modulus Elastisitas Tarik 10%

$$A1 : \frac{\sigma_t}{\epsilon_t} = \frac{36,24}{2} = 18,12 \text{ GPa}$$

$$A2 : \frac{\sigma_t}{\epsilon_t} = \frac{43,68}{2} = 18,99 \text{ GPa}$$

$$A3 : \frac{\sigma_t}{\epsilon_t} = \frac{27,77}{22} = 55,54 \text{ GPa}$$

$$B1 : \frac{\sigma_t}{\epsilon_t} = \frac{34,80}{1,1} = 31,63 \text{ GPa}$$

$$B2 : \frac{\sigma_t}{\epsilon_t} = \frac{33,64}{1} = 33,64 \text{ GPa}$$

$$B3 : \frac{\sigma_t}{\epsilon_t} = \frac{52,06}{3} = 41,62 \text{ GPa}$$

$$C1 : \frac{\sigma_t}{\epsilon_t} = \frac{52,06}{3} = 17,35 \text{ GPa}$$

$$C2 : \frac{\sigma_t}{\epsilon_t} = \frac{29,64}{2,4} = 12,35 \text{ GPa}$$

$$C3 : \frac{\sigma_t}{\epsilon_t} = \frac{19,83}{08} = 24,78 \text{ GPa}$$

Modulus Elastisitas 20%

$$A1 : \frac{\sigma_t}{\epsilon_t} = \frac{24,80}{0,9} = 27,55 \text{ GPa}$$

$$A2 : \frac{\sigma_t}{\epsilon_t} = \frac{21,85}{0,4} = 18,99 \text{ GPa}$$

$$A3 : \frac{\sigma_t}{\epsilon_t} = \frac{27,77}{22} = 40,83 \text{ GPa}$$

$$B1 : \frac{\sigma_t}{\epsilon_t} = \frac{17,54}{0,3} = 58,46 \text{ GPa}$$

$$B2 : \frac{\sigma_t}{\epsilon_t} = \frac{22,35}{0,36} = 62,08 \text{ GPa}$$

$$B3 : \frac{\sigma t}{\varepsilon t} = \frac{8,90}{0,2} = 44,5 \text{ GPa}$$

$$C1 : \frac{\sigma t}{\varepsilon t} = \frac{14,40}{0,26} = 55,38 \text{ GPa}$$

$$C2 : \frac{\sigma t}{\varepsilon t} = \frac{24,40}{2} = 12,2 \text{ GPa}$$

$$C3 : \frac{\sigma t}{\varepsilon t} = \frac{27,23}{2,2} = 12,37 \text{ GPa}$$

Modulus Elastisitas 30%

$$A1 : \frac{\sigma t}{\varepsilon t} = \frac{26,43}{0,46} = 57,45 \text{ GPa}$$

$$A2 : \frac{\sigma t}{\varepsilon t} = \frac{26,80}{0,5} = 53,6 \text{ GPa}$$

$$A3 : \frac{\sigma t}{\varepsilon t} = \frac{12,09}{0,22} = 54,95 \text{ GPa}$$

$$B1 : \frac{\sigma t}{\varepsilon t} = \frac{52,06}{0,26} = 200,23 \text{ GPa}$$

$$B2 : \frac{\sigma t}{\varepsilon t} = \frac{24,16}{0,36} = 86,28 \text{ GPa}$$

$$B3 : \frac{\sigma t}{\varepsilon t} = \frac{7,74}{0,34} = 22,76 \text{ GPa}$$

$$C1 : \frac{\sigma t}{\varepsilon t} = \frac{10,70}{0,32} = 33,43 \text{ GPa}$$

$$C2 : \frac{\sigma t}{\varepsilon t} = \frac{11,57}{0,36} = 32,13 \text{ GPa}$$

$$C3 : \frac{\sigma t}{\varepsilon t} = \frac{11,47}{0,38} = 30,18 \text{ GPa}$$



