Lampiran

A

Perhitungan *Ultimate Tensile Strength* (UTS)

$$\sigma_4 = \frac{F}{A} = \frac{28.129\ N}{124{,}690\ mm^2} = 225{,}591\ MPa$$

$$\sigma_6 = \frac{F}{A} = \frac{31.460\ N}{138{,}929\ mm^2} = 226{,}446\ MPa$$

$$\sigma_8 = \frac{F}{A} = \frac{32.179\ N}{136{,}848\ mm^2} = 235{,}144\ MPa$$

$$\sigma_{10} = \frac{F}{A} = \frac{32.525\ N}{153{,}928\ mm^2} = 211{,}286\ MPa$$

$$\sigma_{12} = \frac{F}{A} = \frac{27.695\ N}{132{,}732\ mm^2} = 208{,}653\ MPa$$

$$\sigma_{14} = \frac{F}{A} = \frac{30.062\ N}{132{,}732\ mm^2} = 226{,}486\ MPa$$

$$\sigma_{16} = \frac{F}{A} = \frac{28.849\ N}{132{,}732\ mm^2} = 224{,}881\ MPa$$

$$\sigma_{18} = \frac{F}{A} = \frac{33.527\ N}{141{,}026\ mm^2} = 237{,}736\ MPa$$

$$\sigma_{20} = \frac{F}{A} = \frac{31.065\ N}{141{,}026\ mm^2} = 220{,}278\ MPa$$

$$\sigma_{22} = \frac{F}{A} = \frac{28.631\ N}{128{,}680\ mm^2} = 222{,}497\ MPa$$

Perhitungan Modulus Elastisitas

$$E_4 = \frac{\sigma_2 - \sigma_1}{\varepsilon_2 - \varepsilon_1} = \frac{225-55}{0{,}129-0{,}05} = 2151{,}89\ MPa$$

$$E_6 = \frac{\sigma_2 - \sigma_1}{\varepsilon_2 - \varepsilon_1} = \frac{226-47}{0{,}164-0{,}05} = 1570{,}17\ MPa$$

$$E_8 = \frac{\sigma_2 - \sigma_1}{\varepsilon_2 - \varepsilon_1} = \frac{235-75}{0{,}123-0{,}05} = 2191{,}78\ MPa$$

$$E_{10} = \frac{\sigma_2 - \sigma_1}{\varepsilon_2 - \varepsilon_1} = \frac{211-55}{0{,}142-0{,}05} = 1695{,}65\ MPa$$

$$E_{12} = \frac{\sigma_2 - \sigma_1}{\varepsilon_2 - \varepsilon_1} = \frac{208-57}{0{,}142-0{,}05} = 1641{,}30\ MPa$$

$$E_{14} = \frac{\sigma_2 - \sigma_1}{\varepsilon_2 - \varepsilon_1} = \frac{226-60}{0{,}145-0{,}05} = 1747{,}36\ MPa$$

$$E_{16} = \frac{\sigma_2 - \sigma_1}{\varepsilon_2 - \varepsilon_1} = \frac{224-62}{0{,}151-0{,}05} = 1603{,}96\ MPa$$

$$E_{18} = \frac{\sigma_2 - \sigma_1}{\varepsilon_2 - \varepsilon_1} = \frac{237-65}{0{,}148-0{,}05} = 1755{,}10\ MPa$$

$$E_{20} = \frac{\sigma_2 - \sigma_1}{\varepsilon_2 - \varepsilon_1} = \frac{220-67}{0{,}144-0{,}05} = 1627{,}65\ MPa$$

$$E_{22} = \frac{\sigma_2 - \sigma_1}{\varepsilon_2 - \varepsilon_1} = \frac{222-72}{0{,}131-0{,}05} = 1851{,}85\ MPa$$

Perhitungan Elongation

$$\varepsilon_4 = \frac{\Delta L}{L} = \frac{7{,}8750\ mm}{60\ mm} x100\% = 13{,}125\%$$

$$\varepsilon_6 = \frac{\Delta L}{L} = \frac{9{,}7875\ mm}{60\ mm} x100\% = 16{,}312\%$$

$$\varepsilon_8 = \frac{\Delta L}{L} = \frac{7{,}2625\ mm}{60\ mm} x100\% = 12{,}104\%$$

$$\varepsilon_{10} = \frac{\Delta L}{L} = \frac{8{,}6750\ mm}{60\ mm} x100\% = 14{,}458\%$$

$$\varepsilon_{12} = \frac{\Delta L}{L} = \frac{8{,}7000\ mm}{60\ mm} x100\% = 14{,}5\%$$

$$\varepsilon_{14} = \frac{\Delta L}{L} = \frac{8{,}8875\ mm}{60\ mm} x100\% = 14{,}812\%$$

$$\varepsilon_{16} = \frac{\Delta L}{L} = \frac{9{,}2375\ mm}{60\ mm} x100\% = 15{,}395\%$$

$$\varepsilon_{18} = \frac{\Delta L}{L} = \frac{9{,}1125\ mm}{60\ mm} x100\% = 15{,}187\%$$

$$\varepsilon_{20} = \frac{\Delta L}{L} = \frac{8{,}8875\ mm}{60\ mm} x100\% = 14{,}812\%$$

$$\varepsilon_{22} = \frac{\Delta L}{L} = \frac{8\ mm}{60\ mm} x100\% = 13{,}333\%$$