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5A 28日

2.114 The steel rod ABC is attached to rigid supports and is unstressed at a temperature of 20°C . The steel is assumed elastoplastic, with $\sigma_Y = 250$ MPa and $E = 200$ GPa. The temperature of both portions of the rod is then raised to 120°C . Knowing that $\alpha = 11.7 \times 10^{-6}/^\circ\text{C}$, determine (a) the stress in portion AC , (b) the deflection of point C .

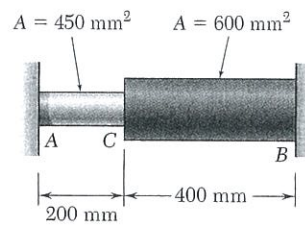


Fig. P2.114

***2.115** Solve Prob. 2.114, assuming that the temperature of the rod is raised to 120°C and then returned to 20°C .