3-4. A coupling with 6 bolts connects the two shafts as shown. The torque T applied on the shafts follows a normal distribution $T \sim N\left(260, 20^2\right) \text{N} \cdot \text{m}$. Each bolt has a diameter $d = 0.01\,\text{m}$, and the bolts are uniformly distributed at a radius $R = 0.025\,\text{m}$. The diameter of the shafts is $D = 0.04\,\text{m}$. Determine the probability that the shear stress in the bolts is less than the maximum shear stress of the shaft. Assume that the shear stress in the bolts is uniform. (**Ans.** $p_f = 0.288$)