FIGURE P12-8

Problems 12-18 and 12-19

*†12-18   The 400-mm-dia steel roller in Figure P12-8 has been tested on a dynamic balancing machine at 100 rpm and shows an unbalanced force of $F_1 = 0.291$ N @ $\theta_1 = 45°$ in the x-y plane at 1 and $F_4 = 0.514$ N @ $\theta_4 = 210°$ in the x-y plane at 4. Determine the angular locations and required diameters of 25-mm-deep holes drilled radially inward from the surface in planes 2 and 3 to dynamically balance the system.

†12-19   The 500-mm-dia steel roller in Figure P12-8 has been tested on a dynamic balancing machine at 100 rpm and shows an unbalanced force of $F_1 = 0.23$ N @ $\theta_1 = 30°$ in the x-y plane at 1 and $F_4 = 0.62$ N @ $\theta_4 = 135°$ in the x-y plane at 4. Determine the angular locations and required diameters of 25-mm-deep holes drilled radially inward from the surface in planes 2 and 3 to dynamically balance the system.

*   Answers in Appendix F.

†   These problems are suited to solution using *Mathcad, Matlab,* or T*KSolver* equation solver programs.