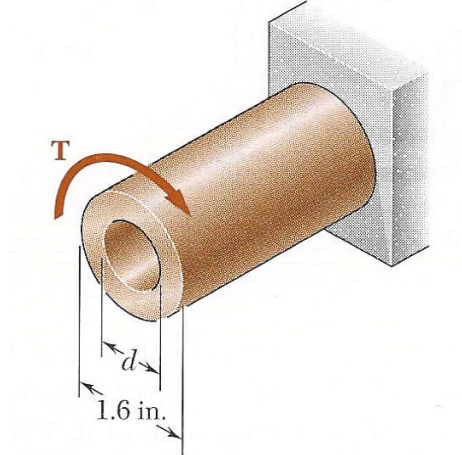


Torsion (Example Problems)

Torsion - Problem 1



Specifications:

Inner diameter, d , = 0.9 inches

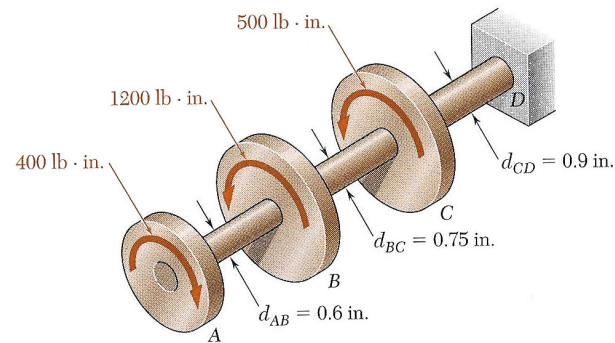
Applied torque, T = 9000 in-lbs

Shaft Length, L = 10.00 inches

Material = 1026 DOM steel tubing.

Determine:

- The maximum shear stress, τ .
- The angle of twist, θ .
- The component weight.
- The diameter of a solid shaft for which the maximum shear stress is the same as part *a*.
- The component weight of the solid shaft.

Torsion - Problem 2

Specifications:

Shafts AB, BC, CD are solid material.

Determine:

- The shaft section in which the maximum shear stress occurs and the magnitude of the stress.

Now consider that the shaft is tubular with a 0.300 inner diameter.

Determine:

- The shaft section in which the maximum shear stress occurs and the magnitude of the stress.