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:

a) The maximum shear stress, τ.
b) The angle of twist, θ.
c) The component weight.
d) The diameter of a solid shaft for which the maximum shear stress is the same as part a.
e) The component weight of the solid shaft.
**Torsion - Problem 2**

Specifications:
Shafts AB, BC, CD are solid material.

Determine:

a) 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:

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