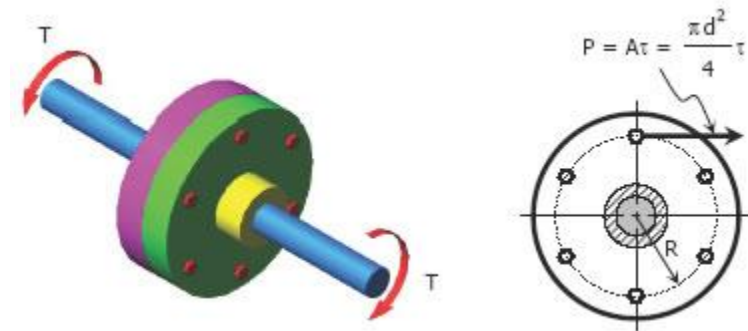


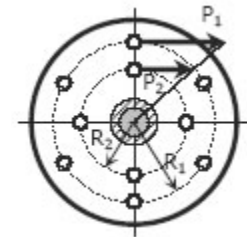
Flanged Bolt Couplings

In shaft connection called flanged bolt couplings (see figure above), the torque is transmitted by the shearing force P created in the bolts that is assumed to be uniformly distributed. For any number of bolts n , the torque capacity of the coupling is



If a coupling has two concentric rows of bolts, the torque capacity is

where the



where the subscript 1 refers to bolts on the outer circle and subscript 2 refers to bolts on the inner circle. See figure.

For rigid flanges, the shear deformations in the bolts are proportional to their radial distances from the shaft axis. The shearing strains are related by

Using Hooke's law for shear, $G = \tau / \gamma$, we have

If the bolts on the two circles have the same area, $A_1 = A_2$, and if the bolts are made of the same material, $G_1 = G_2$, the relation between P_1 and P_2 reduces to