

**Concept Question 11-3:** What does the coupling coefficient represent? What is its range?

The **coupling coefficient**  $k$  defines the degree of magnetic coupling between the coils, with  $0 \leq k \leq 1$ . For a **loosely coupled** pair of coils,  $k < 0.5$ ; for **tightly coupled** coils,  $k > 0.5$ ; and for **perfectly coupled** coils,  $k = 1$ . The magnitude of  $k$  depends on the physical geometry of the two-coil configuration and the magnetic permeability  $\mu$  of the core material.