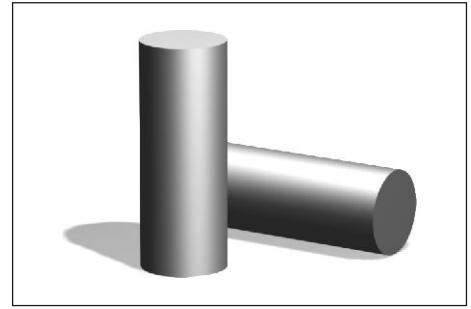


IRON POWDER CORE SERIES PRODUCTS

Cylinder Type Cores



TECHNICAL INFORMATION & PHYSICAL CHARACTERISTICS

Size tolerance (mm)

Part Number	OD	L
KP3.45 - KP25.4	+0.00 -0.15	±0.50

APPLICATION FOR CYLINDER CORES

According to the following formula, It may be calculated out inductance and required coil turns of plain cores.

Single-layer winding

$$L = \frac{\mu_e (r N)^2}{9r + 10i}$$

$$N = \frac{1}{r} \left(\frac{\mu_e (r N)^2}{9r + 10i} \right)^{1/2}$$

Multilayer winding

$$L = \frac{(0.8) \mu_e (r N)^2}{6r + 9i + 10 b}$$

$$N = \frac{1}{r} \left(\frac{L(6r + 9i + 10b)}{(0.8)(\mu_e)} \right)^{1/2}$$

In formula:

L=Inductance(uH)

μ_e =Effective permeability of core

N=Coil turns

r=Radius of coil

D=Diameter of core

l=length of coil/core

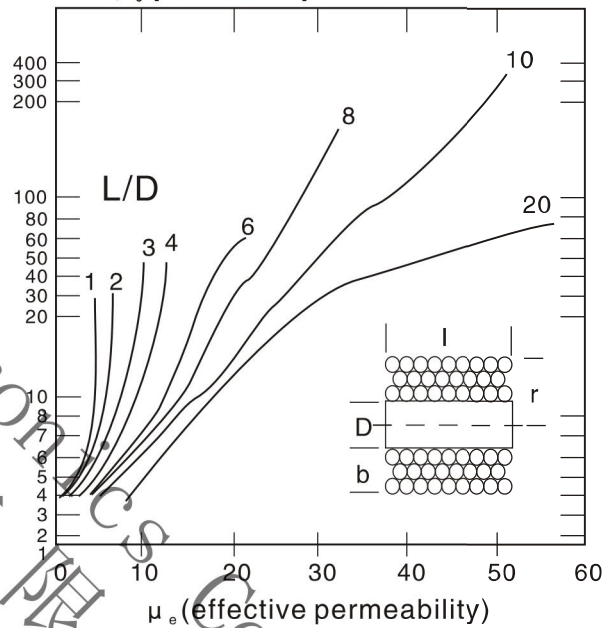
b=winding height of coil

Le: Mean Magnetic Path Length

Ae: Cross Section Area

Ve: Core Volume

μ_o (permeability of core material)



Shown by curves in the above figure, effective permeability (μ_e) of a cylinder winding core is a function of material initial permeability (μ_o) except for function (l/D) of comparing length with diameter of core coil.

The calculating method of curves is gained from 95% cylinder core length of coil single layer winding, also may be calculated out the similar effective permeability for core of multilayer winding.