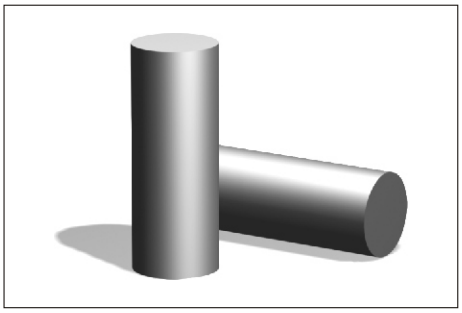
IRON POWDER CORE SERIES PRODUCTS

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

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

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

Multilayer winding

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

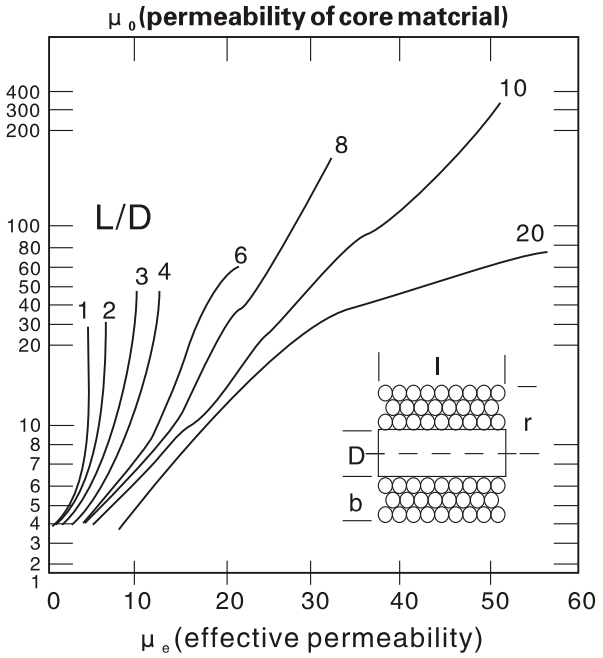
$$N=\frac{1}{r}\left(\frac{L(6r+9i+10b)}{(0.8)(\mu_e)}\right)^{1/2}$$

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 Magetic Path Length

Ae: Cross Section Area

Ve: Core Volume



Shown by curves in the above figure, effective permeability (μ_e)of a cylinder winding core is a function of material initial permeability(μ_0) 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.

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