Glossary of Amorphous Magnetic Parts

Technical Terms

Saturable Core	A magnetic core can be able to saturate. These cores have a high square shape ratio, and it can use magnetic saturation and magnetic being un-saturated.
Toroidal Core	Magnetic core which has doughnut shape.
Cross Section	Effective core cross section area :Ae, $Ae\ [m^2] = ((OD[m] - ID[m]) \times height\ HT[m] / 2) \times pf$
Packing Factor pf	The ratio of the absolute area of magnetic material to the geometrical area of them.
Magnetic Path Length Lm	Length of the magnetic circuit. In the case of the toroidal core, magnetic mean path length Lm is adopted. $Lm\ [m] = (OD[m] + ID[m]) \times \pi/2$
Magnetic Flux Density B	Magnetic flux strength of the material, which is perpendicular magnetic flux of the unit area. $B[T] = \phi[Wb] / Ae\ [m^2]$
Magnetic Flux ϕ	$\phi[Wb = V \cdot sec] = B[T] \times Ae\ [m^2]$
Magnetic Field Strength H	$H[A/m] = I\ [A] / Lm\ [m]$
Permeability μ	$\mu = B / H$. Inductance L is proportional to permeability μ.
Initial Permeability μ_i *1	First inclination of the initial growth of magnetic flux density B (see the illustrate bellow)
Maximum Flux Density Bm	In this booklet, Bm is defined as the flux density when the magnetic field Hm is impressed. (see the illustrate bellow)
Residual Magnetic Fux Density Br	Br is the flux density at the time of the impressed magnetic field returned to H = 0 (see the illustrate bellow)
Total Magnetic Flux ϕ_C	Total magnetic flux of the core. In this booklet, total magnetic flux ϕ_C is defined as the following equation. $\phi_C\ [Wb] = 2 \times Bm\ [T] \times Ae\ [m^2]$
Rectangular Ratio Br / Bm	The ratio of the Bm and Br. Bigger the rectangular ratio, much more superior on the magnetic saturability. $Br / Bm = Br\ [T] / Bm\ [T]$
Coercive Force Hc	Hc is the cross point of the BH curve and X axis. Smaller the Hc, much more superior and less the loss. (see the illustrate bellow)

**1 Initial permeability is out of control in the case of saturable cores, because it is unrelated to the Mag-Amp.*