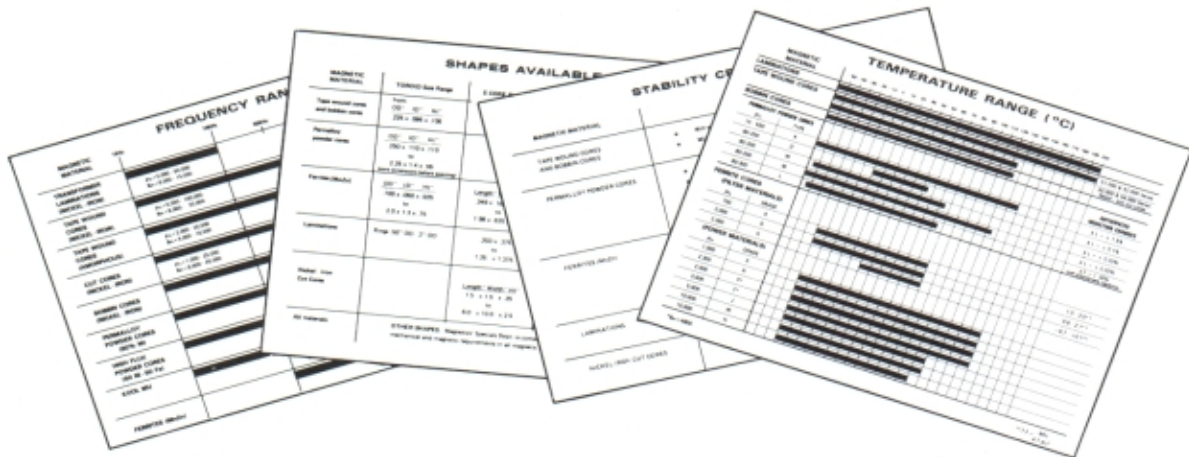


For Designers of Chokes, Coils, Inductors, Filters and Resonant Circuits



FREQUENCY — TEMPERATURE — GEOMETRY — STABILITY

Four major variables that influence performance of magnetic components. Magnetics handy reference charts will help the designer select the magnetic component that precisely meets his needs. Magnetics complete line of cores and laminations offers freedom of choice.

Selection, of course, depends on the specific application involved. Tape wound and bobbin cores are generally used in square loop applications such as inverters or magnetic amplifiers. Permalloy powder cores and ferrites, having linear characteristics, are primarily used in chokes, coils, inductors, filters, resonant circuits, and transformers; there are also certain varieties of tape cores that could be used in these applications. These charts will help define your needs, and specific data on each family of products is available upon request.

FREQUENCY RANGE

MAGNETIC MATERIAL	1KHz	10KHz	30KHz	100KHz	200KHz	1MHz	2MHz
TRANSFORMER LAMINATIONS (NICKEL - IRON)	 $\mu_o = 5,000 - 60,000$ $B_m = 8,000 - 15,000$						
TAPE WOUND CORES (NICKEL - IRON)	 $\mu_o = 5,000 - 100,000$ $B_m = 8,000 - 20,000$						
TAPE WOUND CORES (AMORPHOUS)	 $\mu_o = 3,000 - 20,000$ $B_m = 5,000 - 16,000$						
CUT CORES (NICKEL - IRON)	 $\mu_o = 1,000 - 25,000$ $B_m = 8,000 - 20,000$						
BOBBIN CORES (NICKEL - IRON)		 $\mu_o = 5,000 - 100,000$ $B_m = 8,000 - 15,000$					
PERMALLOY POWDER CORES (80% Ni)		 $\mu_o = 14 - 550$ $B_m = 7,000$					
HIGH FLUX POWDER CORES (50 Ni - 50 Fe)		 $\mu_o = 14 - 160$ $B_m = 14,000$					
KOOL MU POWDER CORES		 $\mu_o = 26-125$ $B_m = 14,000$					
FERRITES (MnZn)		 $\mu_o = 750 - 15,000$ $B_m = 3,500 - 5,000$					

TEMPERATURE RANGE (°C)

MAGNETIC MATERIAL		-50	-40	-30	-20	10	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	
LAMINATIONS																												
TAPE WOUND CORES																												51,000 & 52,000 Series
																												50,000 & 54,000 Series
																												Nickel - iron cut cores
BOBBIN CORES																												
PERMALLOY POWDER CORES																												ANTICIPATED
μ_0	TYPE																											INDUCTION CHANGES
14 - 550	A																											$\Delta L = \pm 1.5\%$
60-200	D																											$\Delta L = \pm 0.1\%$
60-200	W																											$\Delta L = \pm 0.25\%$
60-200	M																											$\Delta L = \pm 0.25\%$
60-300	L																											$\Delta F = < .0.5\%$ with polystyrene capacitor
FERRITE CORES																												
(FILTER MATERIALS)																												
μ_0	GRADE																											
750	A																											1.0 - 3.0**
2,000	D																											0.9 - 2.1**
2,300	G																											-0.7 - + 0.7**
(POWER MATERIALS)																												
μ_0	GRADE																											
1,500	K																											
2,300	R																											
2,500	P*																											
3,000	F*																											
5,000	J																											
10,000	W																											
15,000	H																											

*Bm=4900

$$** \text{ T.F.} = \frac{\Delta \mu_0}{\Delta T \mu_0^2}$$

SHAPES AVAILABLE

MAGNETIC MATERIAL	TOROID Size Range	E CORE Size Range	OTHER SHAPES	MISC.
Tape wound cores and bobbin cores	from OD" ID" Ht" .225 x .095 x .105			
Permalloy Powder Cores				
High Flux Powder Cores	OD" ID" Ht" .140 x .070 x .060 to 3.06 x 1.9 x .5			
Kool Mu Powder Cores	(core dimensions before painting)			
Ferrites (MnZn)	OD" ID" Ht" .100 x .050 x .025 to 3.4 x 2.2 x .5	Length" Width" Ht" .349 x .160 x .075 to 3.1 x 1.5 x .78	Pot Cores 4mm x 2mm to 45mm x 29mm. Machined blocks up to 6" x 2-1/2" x 3/4"	Special machined shapes and sizes
Laminations	Rings .50" OD-2" OD	.203 x .375 to 1.25 x 1.375	Special shapes	DU, E-I, U-I, F, L Shapes also available
Nickel-Iron and Amorphous Cut Cores		1.5 x 1.5 x .25 to 6.0 x 10.0 x 2.5	C Cores Length" Width" Hr" .5 x .25 x .125 to 12.0 x 14.0 x 2.0	
All Materials	Other Shapes: Magnetics Specials Department is completely equipped to supply special shapes for unusual mechanical and magnetic requirements in all magnetic materials.			

STABILITY CRITERIA

MAGNETIC MATERIAL	
TAPE WOUND CORES AND BOBBIN CORES	- Will withstand high shock and vibration - MIL Std. 202 Group 7
PERMALLOY POWDER CORES	- Excellent DC bias stability - Excellent AC flux density stability - Good frequency stability (Q values up to 250) - Narrow inductance tolerances ($\pm 8\%$ in 2% group) - Superior temperature stability (see temperature chart)
FERRITES (MnZn)	- Narrow inductance tolerances ($\pm 3\%$ in gapped pot cores) - Excellent time stability (Disaccommodation factors as low as 1.5 x 10.6) - Very good frequency stability (Q values up to 800 in pot cores) - Good temperature stability - Good DC bias stability
LAMINATIONS	μo stability depends on materials and shape. Not as stable as powder cores.
NICKEL-IRON CUT CORES	- Excellent DC bias stability - Will withstand high shock and vibration



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MPP Powder Cores • High Flux Powder Cores

KOOL MU® Powder Cores

Tape Wound Cores • Bobbin Cores

Ferrite Cores

Custom Components

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