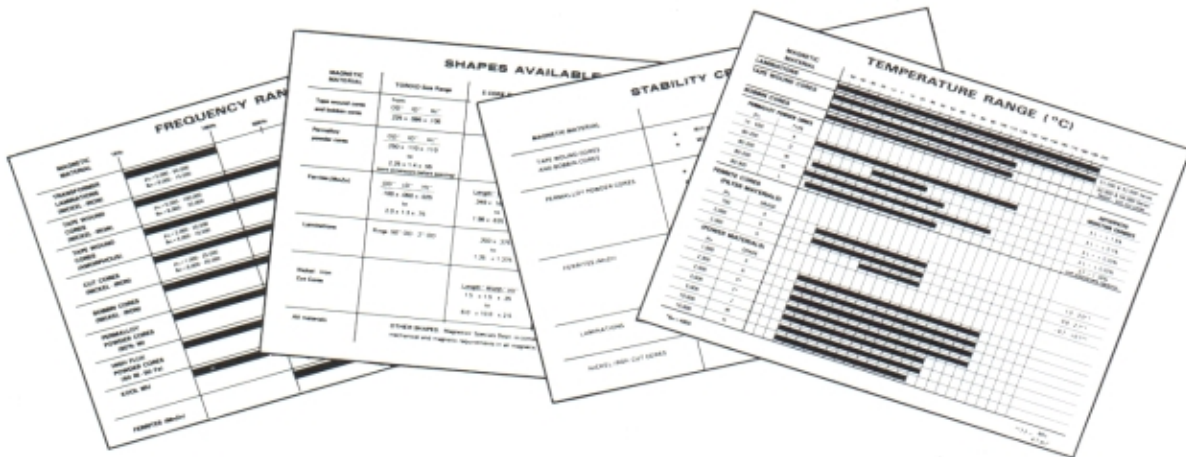


For Designers of Chokes, Coils, Inductors, Filters and Resonant Circuits



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% Nil)		$\mu_o = 14 - 550$ $B_m = 7,000$					
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 INDUCTION CHANGES	
μ_o	TYPE																									
14 - 550																									$\Delta L = \pm 1.5\%$	
60-200																									$\Delta L = \pm 0.1\%$	
60-200																									$\Delta L = \pm 0.25\%$	
60-200																									$\Delta L = \pm 0.25\%$	
60-300																									$\Delta F = < .0.5\%$ with polystyrene capacitor	
FERRITE CORES																										
(FILTER MATERIALS)																										
μ_o	GRADE																									
750																									1.0 - 3.0**	
2,000																									0.9 - 2.1**	
2,300																									-0.7 - + 0.7**	
(POWER MATERIALS)																										
μ_o	GRADE																									
1,500																										
2,300																										
2,500																										
3,000																										
5,000																										
10,000																										
15,000																										

*Bm=4900

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

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	<ul style="list-style-type: none"> Will withstand high shock and vibration MIL Std. 202 Group 7
PERMALLOY POWDER CORES	<ul style="list-style-type: none"> 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)	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> μo stability depends on materials and shape. Not as stable as powder cores.
NICKEL-IRON CUT CORES	<ul style="list-style-type: none"> 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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