

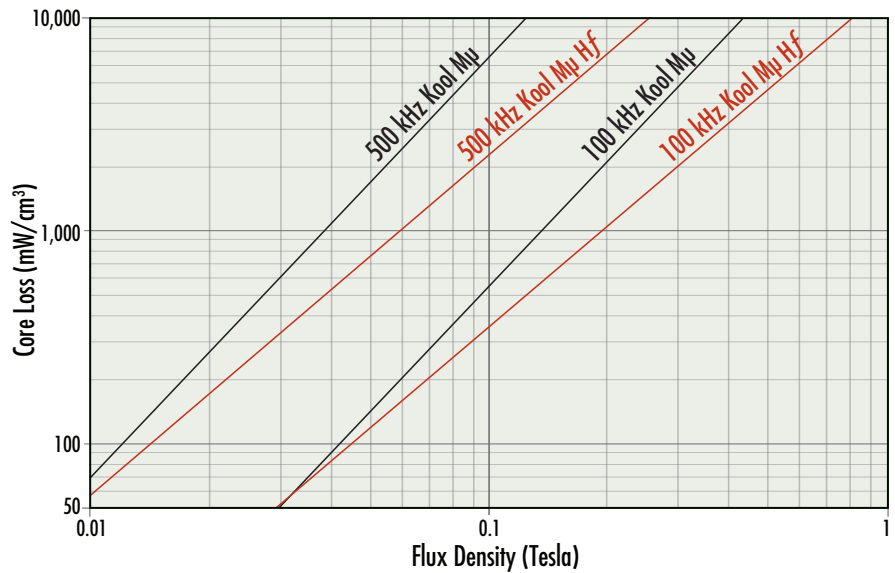


# Kool M $\mu$ <sup>®</sup> Hf Powder Cores

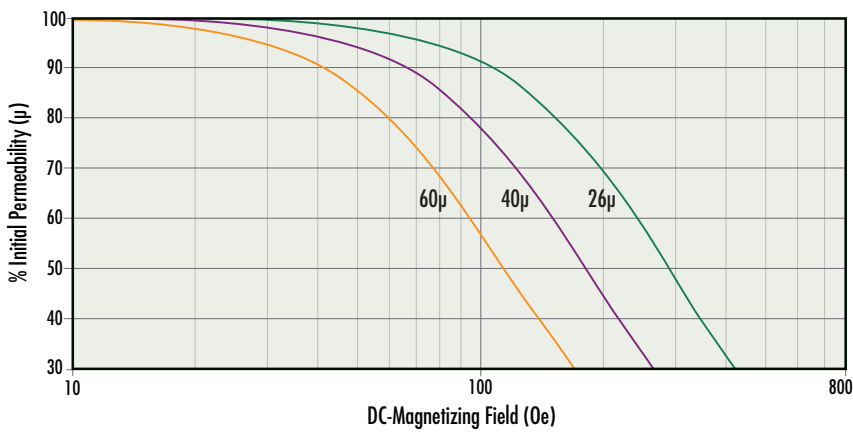
Kool M $\mu$ <sup>®</sup> Hf powder cores are made from distributed gap FeSiAl alloy powder optimized for frequencies 200-500 kHz. Exhibiting up to 35% lower losses when compared to Kool M $\mu$ <sup>®</sup>, Kool M $\mu$  Hf is a cost-effective solution for minimizing power losses in high frequency power supplies using GaN or SiC and high efficiency power supplies.

Currently available in 26, 40 and 60 permeabilities.

60 $\mu$  Core Loss Density



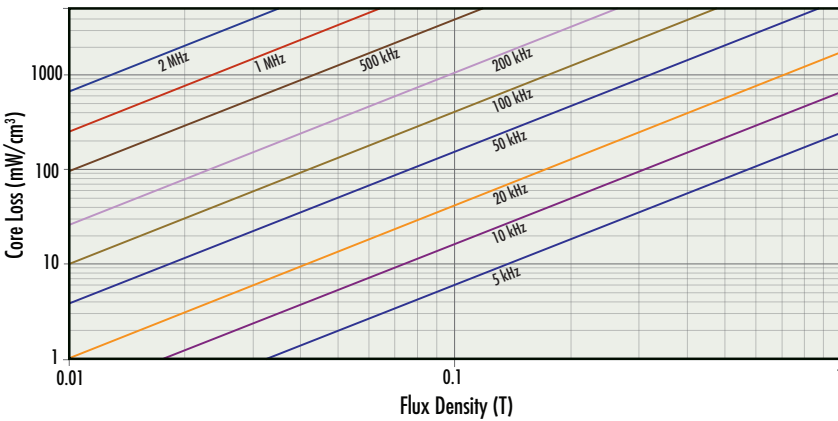
Material	Alloy Composition	DC Bias	Core Loss	Relative Cost	Saturation Flux Density (Tesla)	Curie Temperature	60 $\mu$ Maximum Usable Frequency
<b>Kool M<math>\mu</math><sup>®</sup> Hf</b>	<b>FeSiAl</b>	<b>Moderate</b>	<b>Lowest</b>	<b>Medium</b>	<b>1.0</b>	<b>500°C</b>	<b>30 MHz</b>
Edge <sup>®</sup>	FeNi	Highest	Very Low	High	1.5	500°C	20 MHz
MPP	FeNiMo	Moderate	Very Low	Highest	0.8	460°C	6 MHz
Kool M $\mu$ <sup>®</sup> MAX	FeSiAl	Moderate	Low	Medium	1.0	500°C	15 MHz
Kool M $\mu$ <sup>®</sup>	FeSiAl	Moderate	Low	Lowest	1.0	500°C	5 MHz
High Flux	FeNi	High	Moderate	High	1.5	500°C	3 MHz
XFlux <sup>®</sup>	FeSi	High	High	Low	1.6	700°C	1.5 MHz



## Permeability vs. DC Bias

$$\frac{\mu}{\mu_i} \times 100 = \frac{1}{(a + bH^c)}$$

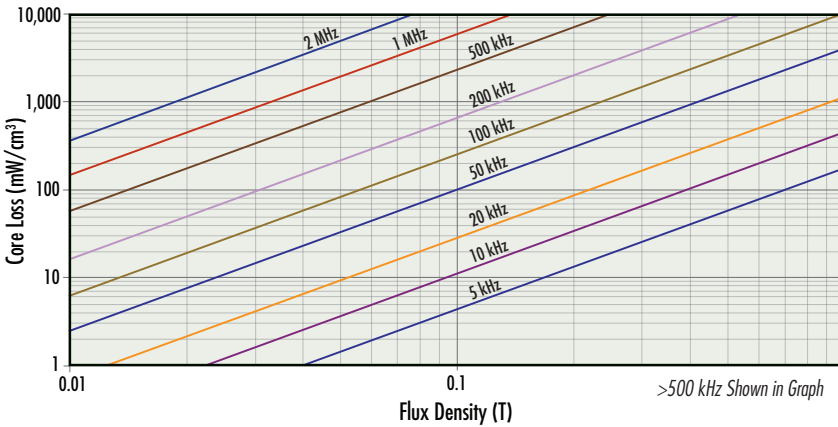
	a	b	c
26µ	0.01	3.56E-08	2.213
40µ	0.01	1.28E-07	2.169
60µ	0.01	4.06E-07	2.131



## Core Loss Density 26µ

$$P = a(B^b)(f^c)$$

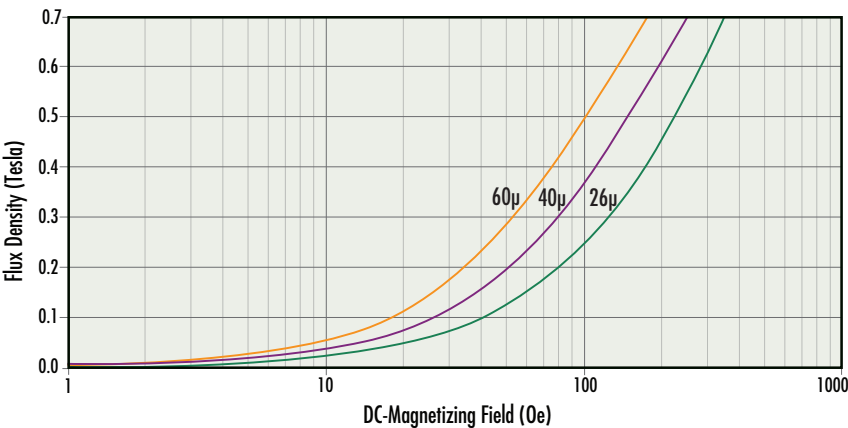
	a	b	c
26µ	26.41	1.602	1.394



## Core Loss Density 40µ, 60µ

$$P = a(B^b)(f^c)$$

	a	b	c
40µ, 60µ < 500 kHz	55.44	1.602	1.200
40µ, 60µ > 500 kHz	19.46	1.602	1.360



## DC Magnetization

$$B = \left[ \frac{a + bH + cH^2}{1 + dH + eH^2} \right]^x \text{ Units: B in Tesla, H in Oe}$$

Perm	a	b	c
26µ	2.053E-02	1.358E-02	2.398E-04
40µ	4.731E-02	1.485E-02	5.167E-04
60µ	2.143E-02	1.129E-02	6.411E-04

Perm	d	e	x
26µ	6.063E-02	1.634E-04	1.672
40µ	6.951E-02	4.233E-04	1.662
60µ	6.748E-02	5.093E-04	1.318



### HEADQUARTERS

110 Delta Drive  
Pittsburgh, PA 15238

(p) 1.412.696.1333  
1.800.245.3984

magnetics@spang.com  
www.mag-inc.com

### MAGNETICS INTERNATIONAL

13/F 1-3 Chatham Road South  
Tsim Sha Tsui, Kowloon, Hong Kong

(p) +852.2731.9700  
+86.139.1147.1417

asiasales@spang.com  
www.mag-inc.com