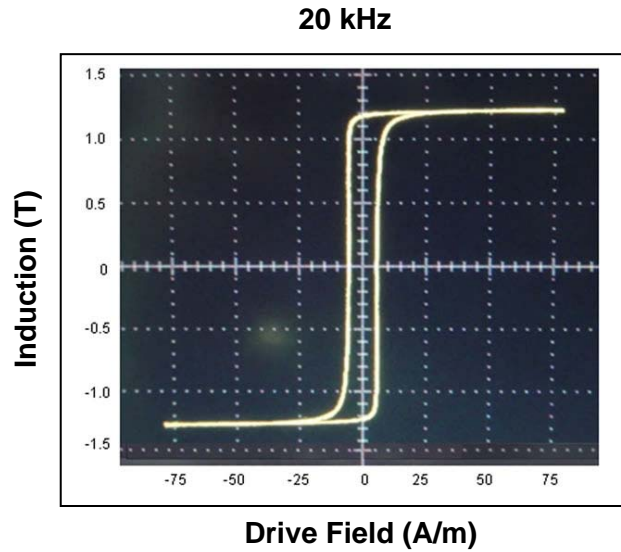


## FINEMET® Alloy

FINEMET® alloy is a nanocrystalline material obtained by heat treating an iron based amorphous alloy. Cores made from this alloy and heat treated to obtain square BH loops are useful as magnetic amplifiers in switch-mode power supplies. These cores have low coercive field and low core losses. The higher saturation induction of the alloy lends itself to small core size. This alloy is lead-free\*.



FINEMET® square loop magnetic cores exhibit square dc hysteresis loop and high  $B_{sat}$  resulting in the following benefits:

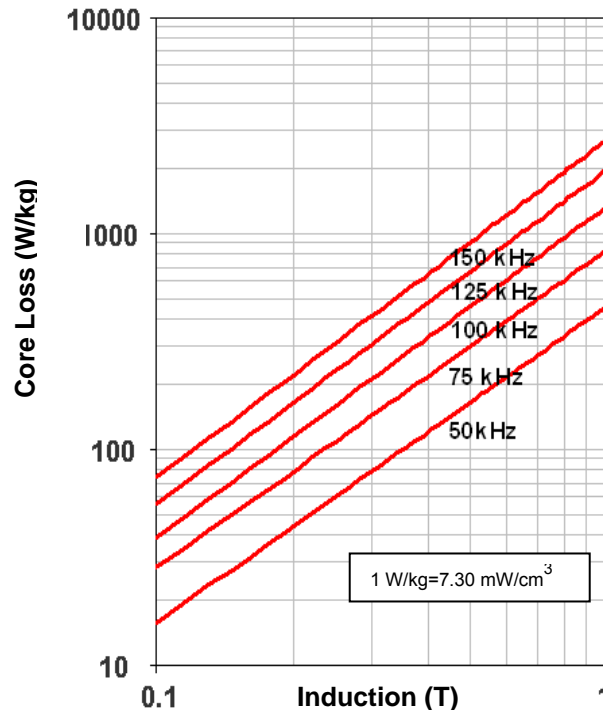
- Low saturated permeability
- Low coercive field - indicating a small reset current
- Low loss – because of thin (18µm) ribbon
- Small size

Saturation induction at 20°C    1.23 T

Saturation induction at 100°C    1.20 T

\*Lead content < 1 ppm by ICP method.

Typical Core Losses at Various Frequencies and Induction Levels



Typical core loss is given by the following equation:

$$\text{Core loss (W/kg)} = 1.19F(\text{kHz})^{1.53}B(\text{T})^{1.52}$$

### Physical Properties FINEMET® cores

Ribbon thickness (µm)	18
Density (g/cm <sup>3</sup> )	7.30
Continuous service temperature (°C)	120

### Magnetic Properties FINEMET® cores

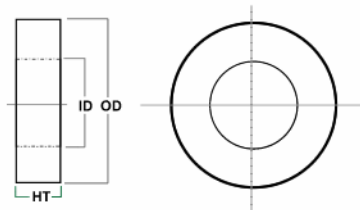
Saturation induction (T)	1.23
Saturation magnetostriction (ppm)	~0
Electrical resistivity (µΩ·m)	1.20
Curie temperature (°C)	570

## Core Ordering Specifications

### MP1005LF3S

Metglas® Product	Square Loop Core			
Outside Diameter (OD)	FINEMET® FT-3 Alloy			
Height (HT)				
<b>Case Material:</b>				
Box Type:	Material:	UL File No.	Flam Rat. UL 94	Elec. Rel. Temp Rec. Index(UL746B) Temp.
L	Zytel® FR50	E41938	V-O	130°C

Other size cores available upon request



	O.D. Max (mm)	I.D. Min (mm)	HT Max (mm)	$L_m$ (cm)	$A_c$ (cm <sup>2</sup> )	Mass (g)	Vol (cm <sup>3</sup> )	$W_a$ (cm <sup>2</sup> )	$W_a A_c$ (cm <sup>4</sup> )	Bsat (T)
MP1005LF3S	10.9	5.6	5.7	2.59	0.063	1.18	0.16	0.25	0.015	1.23
MP1006LF3S	11.4	4.8	6.4	2.51	0.084	1.54	0.21	0.18	0.015	1.23
MP1205LF3S	13.8	6.8	6.6	3.14	0.060	1.38	0.19	0.36	0.021	1.23
MP1303LF3S	14.7	7.9	5.1	3.5	0.043	1.11	0.15	0.49	0.021	1.23
MP1305LF3S	14.4	7.9	6.7	3.46	0.060	1.52	0.21	0.49	0.029	1.23

$A_c$  = effective cross-section area     $L_m$  = mean magnetic path length     $W_a$  = Core window area

Other core sizes may be available on special request

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At the time of publishing, the contact information was current and accurate

Please check <http://www.metglas.com/contacts> for a distributor near you.