

# MICROMETALS™

## POWDER CORE SOLUTIONS

### 2019 Alloy Powder Products Catalog



- #### EQ Core Applications
- AC Filter (Output Filter Inductor)
  - DC Converter
  - Filter Inductor
  - Mode Filter for AC Input
  - Power Factor Inductor
  - Inductor for Resonance

1.300 in. / 33.02 mm OD Toroid

Typical Part Number: **MS - 130 125 - 2**

Material Type: MS-130  
 OD in 100th inches: 125  
 Reference Permeability: 2  
 Finish: -

Area for Special Height (in XX.Xmm)

Magnetic Dimensions	Value
Ae	Effective Magnetic Cross Section: 0.672 cm <sup>2</sup>
Le	Effective Magnetic Path Length: 8.35 cm
Ve	Effective Core Volume: 5.48 cm <sup>3</sup>
WA	Minimum Effective Window Area: 40.1 cm <sup>2</sup>
SA	Surface Area: 4.74 cm <sup>2</sup>
MLT	Mean Length Per Turn: 4.74 cm

Physical Dimensions	Value
OD	Bare Core Nominal: 33.02 mm / 1.300 in
	Coated Core (max): 33.83 mm / 1.332 in
ID	Bare Core Nominal: 19.94 mm / 0.785 in
	Coated Core (min): 19.3 mm / 0.760 in
HT	Bare Core Nominal: 10.67 mm / 0.420 in
	Coated Core (max): 11.61 mm / 0.457 in

Permeability	Part Numbers									
Reference Perm.	A Value (mH/N)	MS	SH	MP	HF-Flux™	FluxSan™	FS	OC	OD	OE
		Sentrol	High Frequency Sentrol	Magnesium Alloy	Nickel Iron	Silicon Iron	Optimized Core Loss	Optimized DC Bias	Optimized Economy	
14μ	19	MS-13014-2	SH-13014-2	MP-13014-2	HF-13014-2	FS-13014-2	OC-13014-2	OD-13014-2	OE-13014-2	
26μ	28	MS-13028-2	SH-13028-2	MP-13028-2	HF-13028-2	FS-13028-2	OC-13028-2	OD-13028-2	OE-13028-2	
40μ	41	MS-13041-2	SH-13041-2	MP-13041-2	HF-13041-2	FS-13041-2	OC-13041-2	OD-13041-2	OE-13041-2	
60μ	61	MS-13061-2	SH-13061-2	MP-13061-2	HF-13061-2	FS-13061-2	OC-13061-2	OD-13061-2	OE-13061-2	

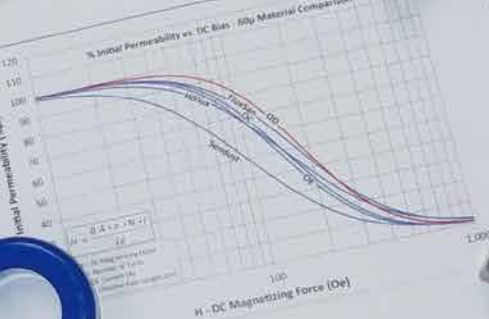
Part Number	Unit	A	B	C	D	E	F	Effective Magnetic Path Length Le (cm)	Effective Magnetic Cross Section Ae (cm <sup>2</sup> )	Al-Value (mH/N) Reference Permeability
EQxx-360260090-xxx	mm	36.050.3	26.090.3	9.250.3	5.050.3	14.440.2	14.440.2	8.11	1.908	26 40 50
EQxx-360260140-xxx	mm	36.050.3	26.090.3	14.050.3	10.050.3	14.440.2	14.440.2	8.11	1.908	95 149 168
EQxx-360260154-xxx	mm	36.050.3	26.090.3	15.440.3	11.440.3	14.440.2	14.440.2	8.11	1.908	73 112 157
EQxx-360260164-xxx	mm	36.050.3	26.090.3	16.440.3	12.440.3	14.440.2	14.440.2	8.11	1.908	68 105 150
EQxx-360260174-xxx	mm	36.050.3	26.090.3	17.440.3	13.440.3	14.440.2	14.440.2	8.11	1.908	62 96 141



#### Optimized DC Bias

The new OD material, Optimized DC Bias, is optimized to provide superior DC Bias while maintaining low losses and be cost competitive. OD material is ideal for applications that require high saturation magnetization that may have traditionally used high flux materials like FluxSan or Hi-Flux.

- Available in 50 sizes of Toroids from 3.5mm to 196mm
- Permeabilities from 14μ to 90μ



#### Optimized Core Loss

The new OC material, Optimized Core Loss, is optimized to provide very low losses while maintaining good DC bias at an economical price. OC material is an economical alternative for applications that may have traditionally used Sentrol or MV-type materials.

- Available in 50 sizes of Toroids from 3.5mm to 196mm
- Permeabilities from 14μ to 225μ

FluxSan™ (Silicon Iron) Powder Cores

FS

### New Products Featured



Optilloy Optimized Alloy Cores



EQ Series Alloy Cores



PQ Series Alloy Cores

#### Micrometals Alloy Powder Core Material Summary

60μ 26.9mm Toroid Comparison	DC Bias 100 Oe	Cost (USD)
OC	263	0.77
OD	450	
OE	457	
FS	651	
HF	676	
SH	323	



## Contents

<b>Introduction</b>	
Material Overview .....	1
Part Number Examples .....	2
Inductance Rating .....	2
Engineering Kits .....	2
Inductance Grading .....	2
Core Finish .....	2
<b>Magnetic Characteristics</b>	
Permeability vs. DC Magnetizing Force .....	3-6
Permeability vs. AC Flux Density .....	7-10
Permeability vs. Frequency .....	11-14
Permeability vs. Temperature .....	15-18
Core Losses .....	19-28
Curve Fit Formula .....	29-30
<b>Toroid Part Numbers</b>	
0.140 in./3.56 mm OD .....	31
0.155 in./3.94 mm OD .....	32
0.183 in./4.65 mm OD .....	33
0.250 in./6.35 mm OD .....	34
0.260 in./6.6 mm OD .....	35
0.260 in./6.6 mm OD .....	36
0.277 in./7.04 mm OD .....	37
0.310 in./7.87 mm OD .....	38
0.380 in./9.65 mm OD .....	39
0.380 in./9.65 mm OD .....	40
0.400 in./10.16 mm OD .....	41
0.440 in./11.18 mm OD .....	42
0.500 in./12.7 mm OD .....	43
0.655 in./16.64 mm OD .....	44
0.680 in./17.27 mm OD .....	45-46
0.800 in./20.32 mm OD .....	47-48
0.900 in./22.86 mm OD .....	49
0.928 in./23.57 mm OD .....	50
1.060 in./26.92 mm OD .....	51-54
1.300 in./33.02 mm OD .....	55-59
1.350 in./34.29 mm OD .....	60
1.410 in./35.81 mm OD .....	61
1.570 in./39.88 mm OD .....	62
1.840 in./46.74 mm OD .....	63-64
2.000 in./50.8 mm OD .....	65
2.250 in./57.15 mm OD .....	66-68
2.500 in./63.5 mm OD .....	69
2.917 in./74.1 mm OD .....	70
3.063 in./77.80 mm OD .....	71-72
3.498 in./88.85 mm .....	73
4.000 in./101.6 mm OD .....	74-75
5.218 in./132.54 mm OD .....	76-77
6.000 in./152.4 mm OD .....	78-79
6.500 in./165.1 mm OD .....	80
7.750 in./ 196.85 mm OD .....	81
<b>E-Core Part Numbers</b>	
12.7 mm/0.500 in. ....	82
19.3 mm/0.760 in. ....	83
25.4 mm/1.000 in. ....	84
30.1 mm/1.185 in. ....	85
34.5 mm/1.358 in. ....	86-87
40.9 mm/1.610 in. ....	88
42.8 mm/1.685 in. ....	89-91
54.9 mm/2.161 in. ....	92-94
65.1 mm/2.563 in. ....	95
72.4 mm/2.850 in. ....	96
80.0 mm/3.150 in. ....	97-101
96.0 mm/3.780 in. ....	102
114.0 mm/4.488 in. ....	103-104
120.0 mm/4.724 in. ....	105-106
<b>Block Part Numbers</b>	
47.5 mm to 80.0 mm .....	107
<b>EQ Geometries</b>	
20.0 mm to 50.0 mm .....	108-109
<b>PQ Geometries</b>	
21.0 mm to 51.0 mm .....	110
<b>Cross Reference</b>	
Old Part Number to New Part Numbers .....	111-112
Competitor Part Numbers .....	113-120
<b>Design Tools</b>	
Inductor Software .....	121-122
Quick Reference .....	123



Arnold Technologies (Shenzhen) Ltd., doing business as Micrometals Alloy Powder Cores is a division of Micrometals Incorporated. The Micrometals Alloy Powder Core factory is located in Shenzhen, China with a sales office in Hong Kong. Micrometals Inc. acquired the powder core division from Arnold Magnetic Technologies in January 2010. Micrometals Inc. is headquartered in Anaheim, California.

**Warranty**  
Parts are warranted to conform to the specifications in the latest issue of this catalog. Micrometals Alloy Powder Core liability is limited to return of parts and repayment of price; or replacement of nonconforming parts. Notice of nonconformance must be made within 30 days after delivery. Before using these products, buyer agrees to determine suitability of the product for their intended use or application. Micrometals Alloy Powder Core shall not be liable for any other loss or damage, including but not limited to incidental or consequential damages.

## Introduction to Powder Cores

Powder Cores are made from discrete particles of ferromagnetic powder. Prior to being formed into a core, the particles are covered in a thin layer of electrically insulated material to ensure electrical isolation of each particle. The particles are then compacted under high pressure to form the core geometry. The electrical insulation between particles enables the materials to be used at high frequency. The insulation also forms a distributed air gap throughout the core material, giving the material the ability to maintain inductance linearity with a DC biasing field.

Micrometals Alloy Powder Cores manufactures 6 different classes of materials: MS - Sendust, SH - High Frequency Sendust, FS - Fluxsan™, MP - Molypermalloy, HF - HI-FLUX™ and Optilloy™ Series. The following table describes size and permeability ranges available for each material class, and also describes the characteristics and applications for these material classes.

### MS - Sendust

- Iron, Silicon, Aluminum alloy powder material
- Permeabilities: 14μ, 26μ, 40μ, 60μ, 75μ, 90μ, 125μ, 147μ and 160μ
- Low Magnetostriction for audibly quiet applications
- Cost effective low loss material
- Operating frequencies to MHz
- No thermal aging
- Wide selection of toroids, E-cores and blocks

### SH - High Frequency Sendust

- Iron, Silicon, Aluminum alloy powder material
- Permeabilities: 26μ, 60μ, 125μ
- Low Magnetostriction for audibly quiet applications
- Cost effective low loss material
- Operating frequencies up to 5 MHz
- Specially designed for GaN and SiC applications
- No thermal aging

### MP - Molypermalloy

- Nickel, Iron Molybdenum alloy powder material
- Permeabilities: 14μ, 26μ, 60μ, 125μ, 147μ, 160μ, 173μ and 205μ
- Very low loss powder material
- Operating frequencies ≤200kHz
- No thermal aging
- Wide selection of toroids up to 154mm
- Stabilized MPP cores available, refer to website for details.

### FS - Fluxsan™ Silicon Iron Alloy

- Silicon, Iron alloy powder material
- Permeabilities: 14μ, 26μ, 40μ, 60μ, 75μ and 90μ
- High saturation characteristics
- Low losses ≤200kHz
- No thermal aging
- Wide selection of toroids, E-cores and blocks

### HF - HI-FLUX™ Nickel Iron

- 50/50 Nickel, Iron alloy powder material
- Permeabilities: 14μ, 26μ, 60μ, 125μ, 147μ and 160μ
- High saturation characteristics
- Moderate losses ≤200kHz
- No thermal aging

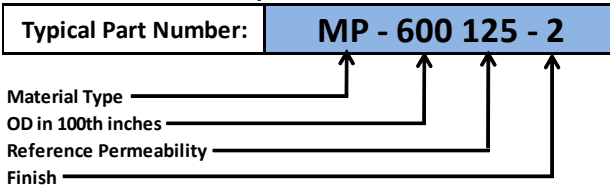
### OC, OD & OE - Optilloy™ Series

- Hybrid alloy powder material
- Permeabilities: 14μ, 26μ, 40μ, 60μ, 75μ, 90μ and 125μ
- Moderate losses ≤200kHz
- No thermal aging
- Toroids up to 196mm

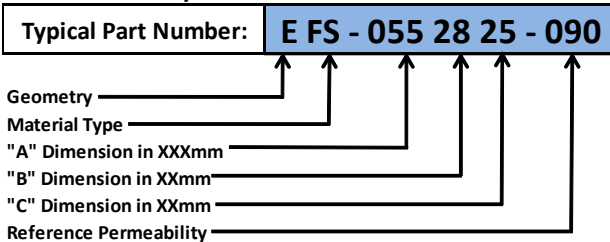
## Part Numbers

Micrometals Alloy Powder Core part numbers are constructed as shown below.

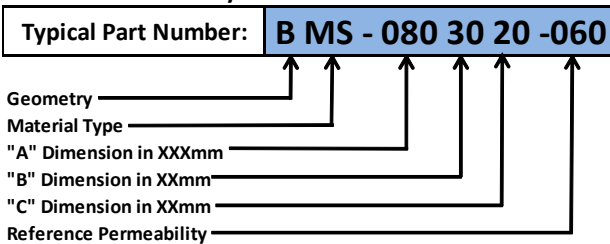
### Toroidal Core Geometry



### E-Core Geometry



### Block Core Geometry



Materials	
MS	= Sendust
SH	= High Frequency Sendust
FS	= FluxSan™
MP	= Molypermalloy
HF	= Hi-Flux™
OC	= Optimized Core Loss
OD	= Optimized DC Bias
OE	= Optimized Economy

Finish	
2	= Blue Epoxy
8	= Parylene N
8C	= Parylene C

## Inductance Rating

In this catalog the inductance ratings, also known as  $A_L$  values, are expressed in nanohenries ( $10^{-9}$  Henries) per turn (N) squared ( $nH/N^2$ ).

To calculate the number of turns required for a desired inductance (L) in nanohenries (nH) use the following formula:

$$\text{Required turns} = \left[ \frac{\text{desired } L \text{ (nH)}}{A_L \text{ (nH/N}^2\text{)}} \right]^{\frac{1}{2}}$$

## Inductance Tolerance

The cores are manufactured to the  $A_L$  values listed in this catalog with a  $\pm 8\%$  inductance tolerance with the exception of small (0.14 to 0.44 inches) toroidal cores with Sendust (MS) material. Refer to catalog part page for details.

## Inductance Grading

Binning and marking in 1% grades is possible upon request.

## Core Finishes

Standard toroidal cores are all furnished with an isolation coating. Coating type and dielectric strength vary with part sizes, details and test conditions are offered on the part pages. Finished are tested for dielectric strength with conductive foam pads pressed against the two flat surfaces and around the OD/ID corners of the core.

Part numbers are labeled on individual parts on toroid sizes 0.40 in. (10.2mm) and larger. Toroid part sizes less than 0.40 in (10.2mm) are coated with Parylene N. Parylene C is available upon request but is not RoHS compliant.

## Engineering Kits

Engineering kits and evaluation samples are available; please refer to Micrometals Alloy Powder Cores website ([www.MicrometalsAPC.com](http://www.MicrometalsAPC.com)) for distributor or local sales contact for details.

## Engineering Assistance

Micrometals Alloy will gladly extend engineering and design assistance to aid in your core selection. Please refer questions to [Applications@Micrometals.com](mailto:Applications@Micrometals.com). In addition Micrometals Alloy Powder Cores offers Induction Design Software which can be downloaded at no charge. Please refer to pages 121 to 122 for details.

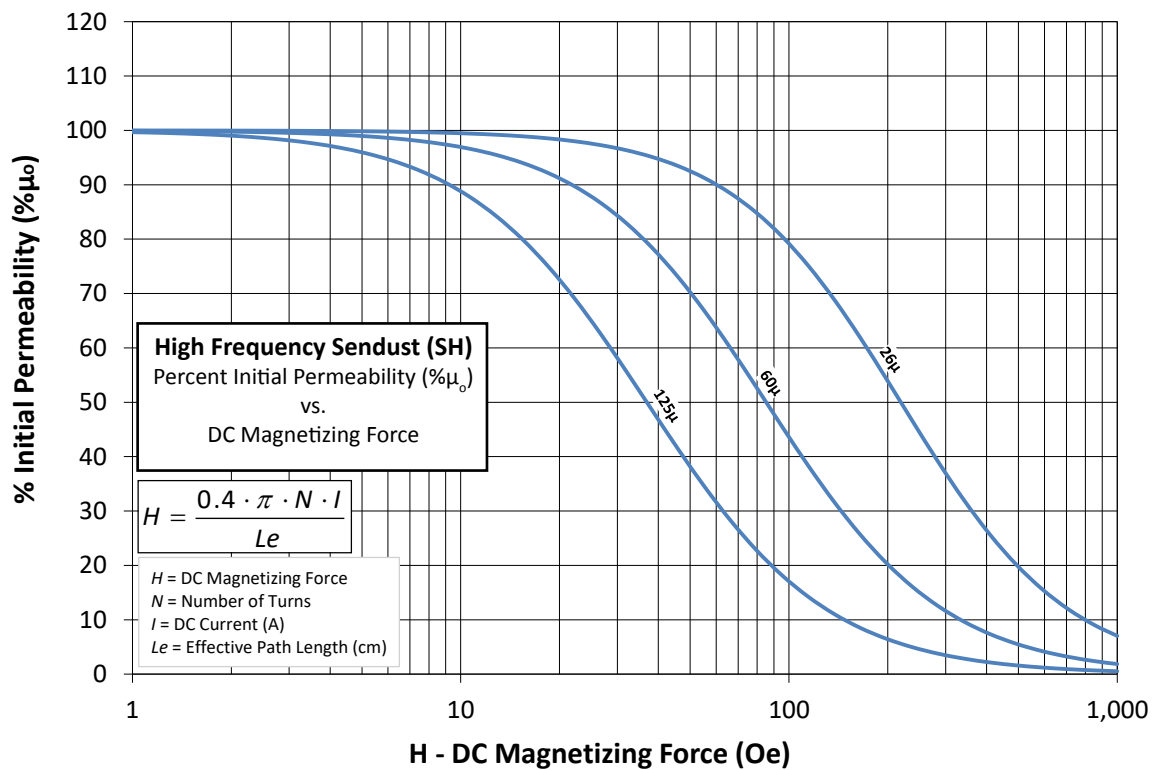
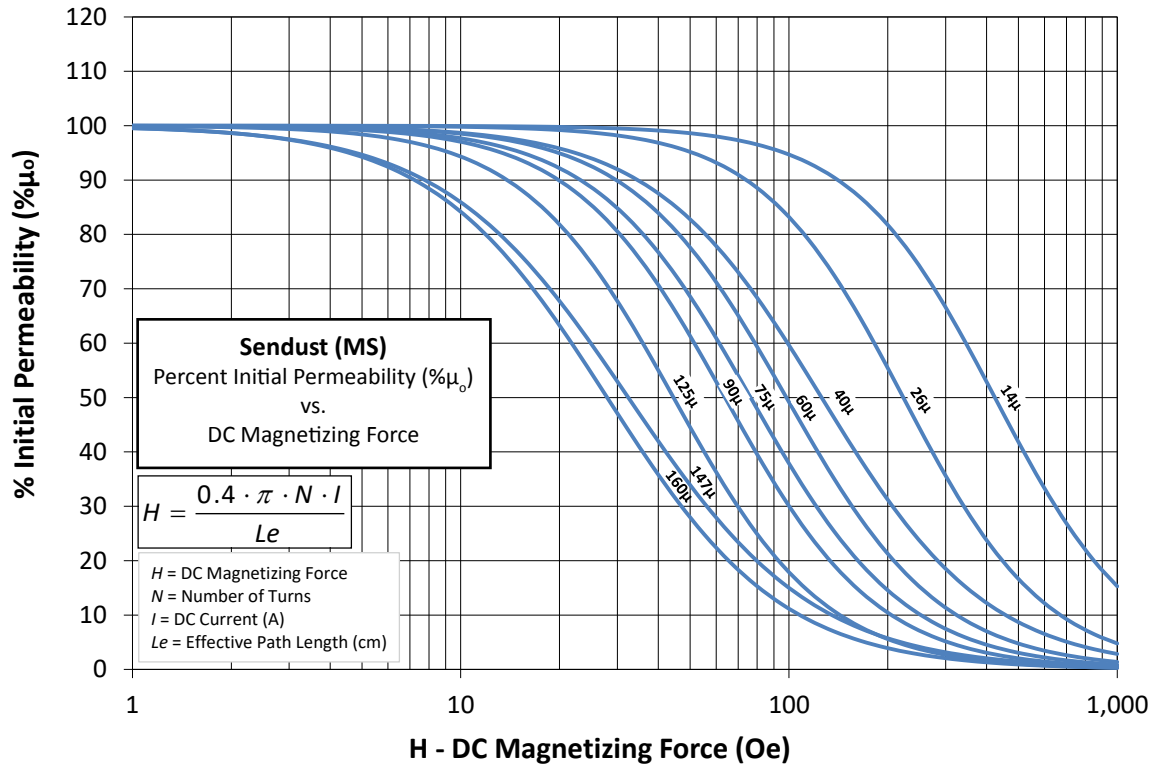
## Custom Shapes and Sizes

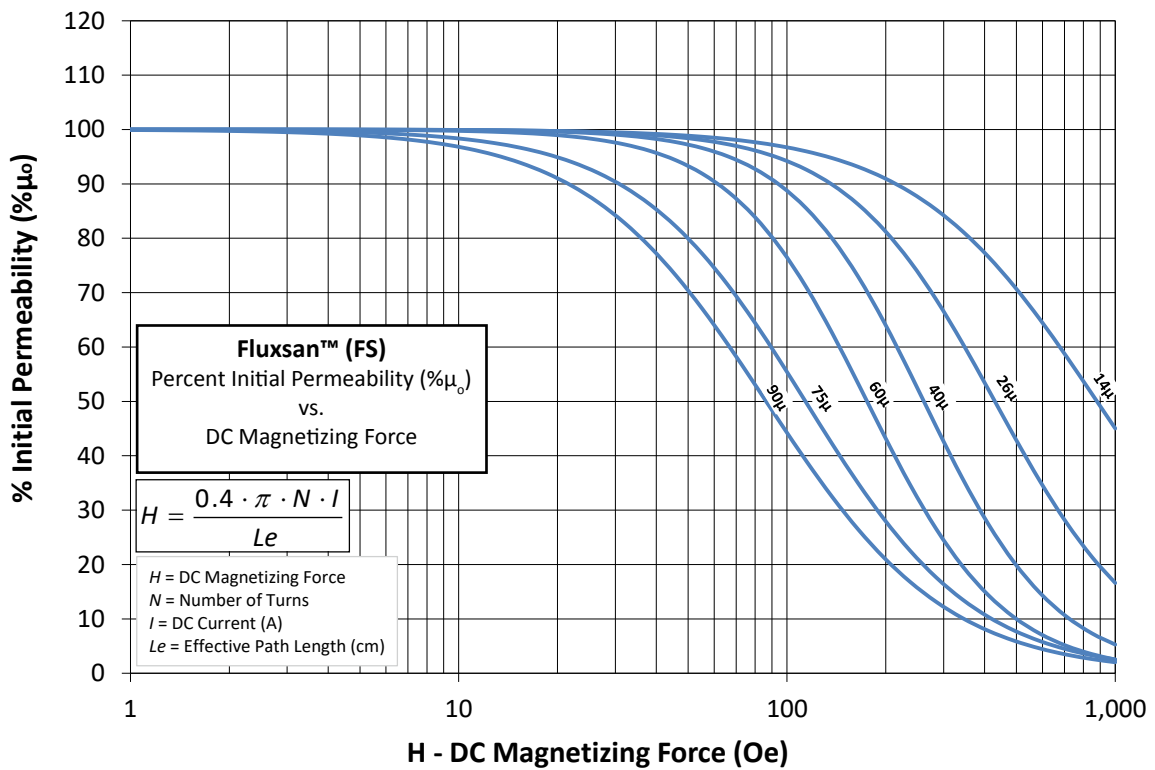
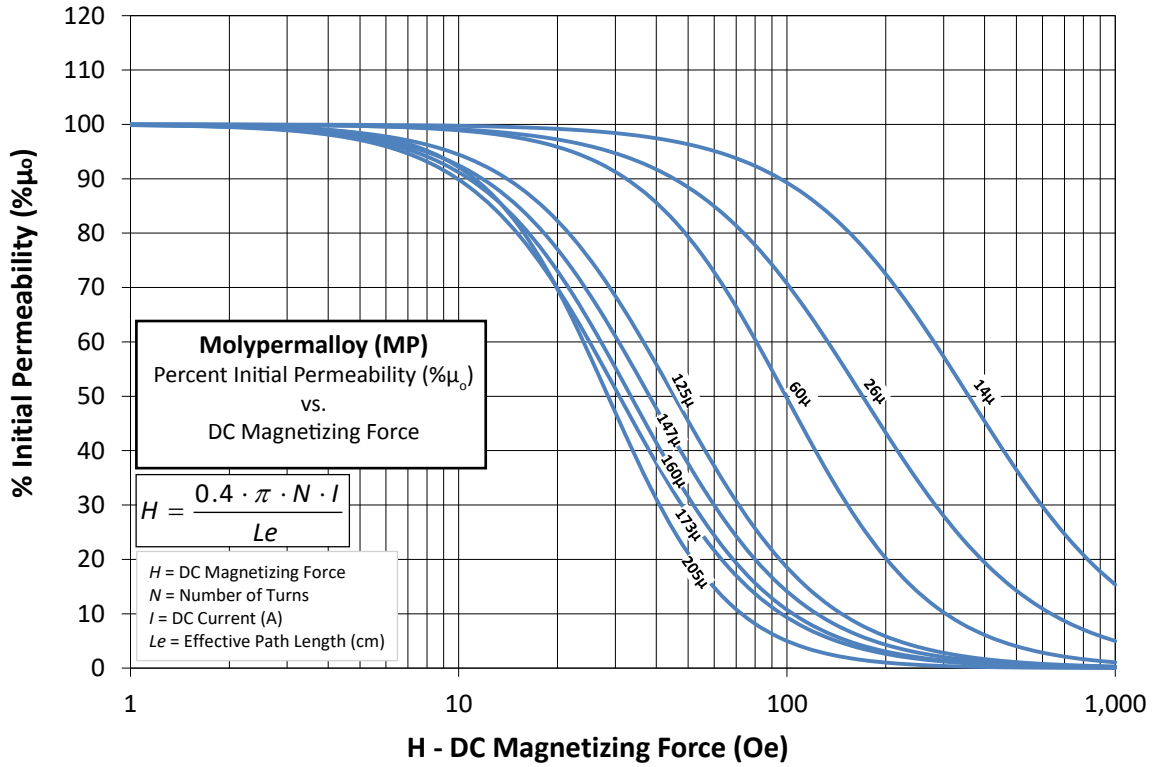
In addition to the items shown in this catalog, Micrometals Alloy Powder Cores will gladly produce custom shapes and sizes.

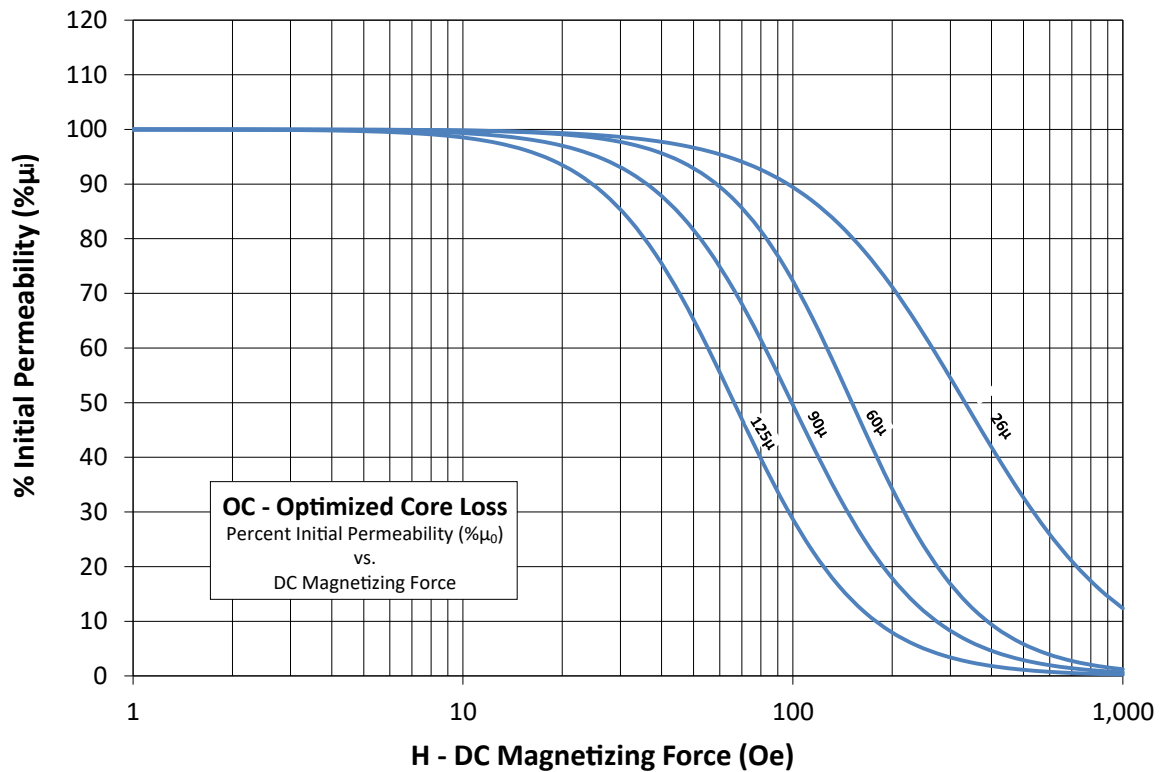
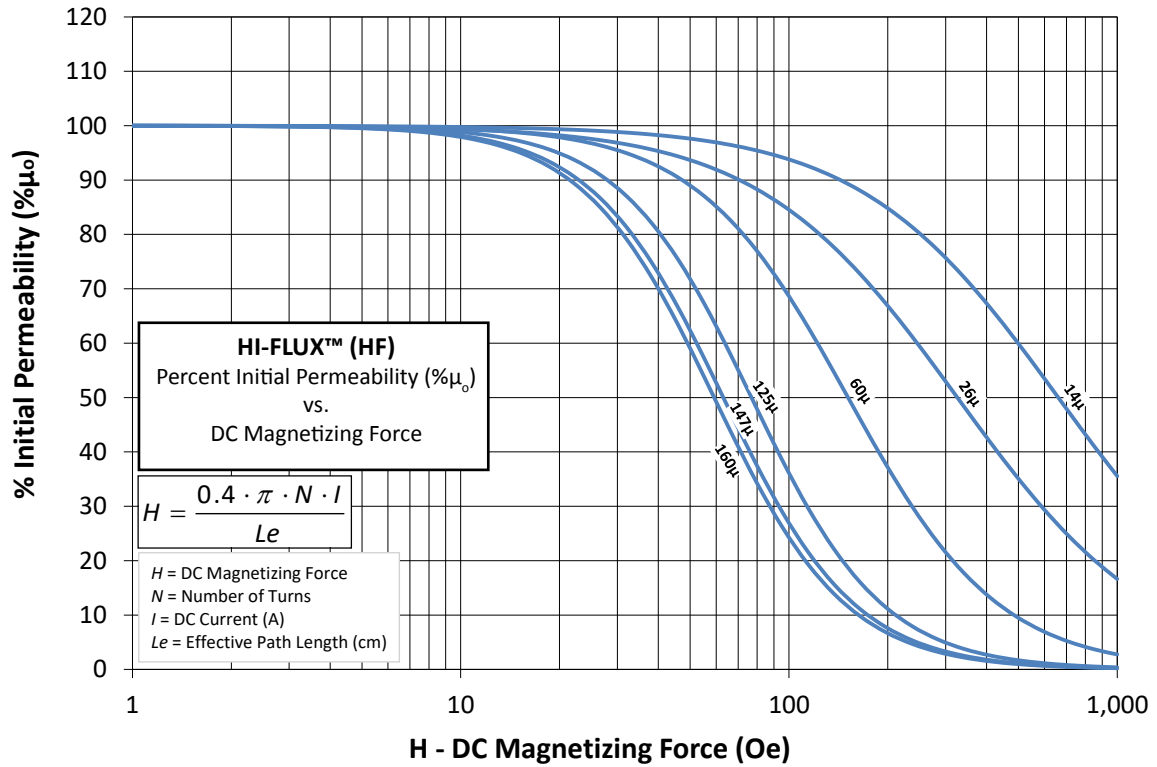
## Packing Information

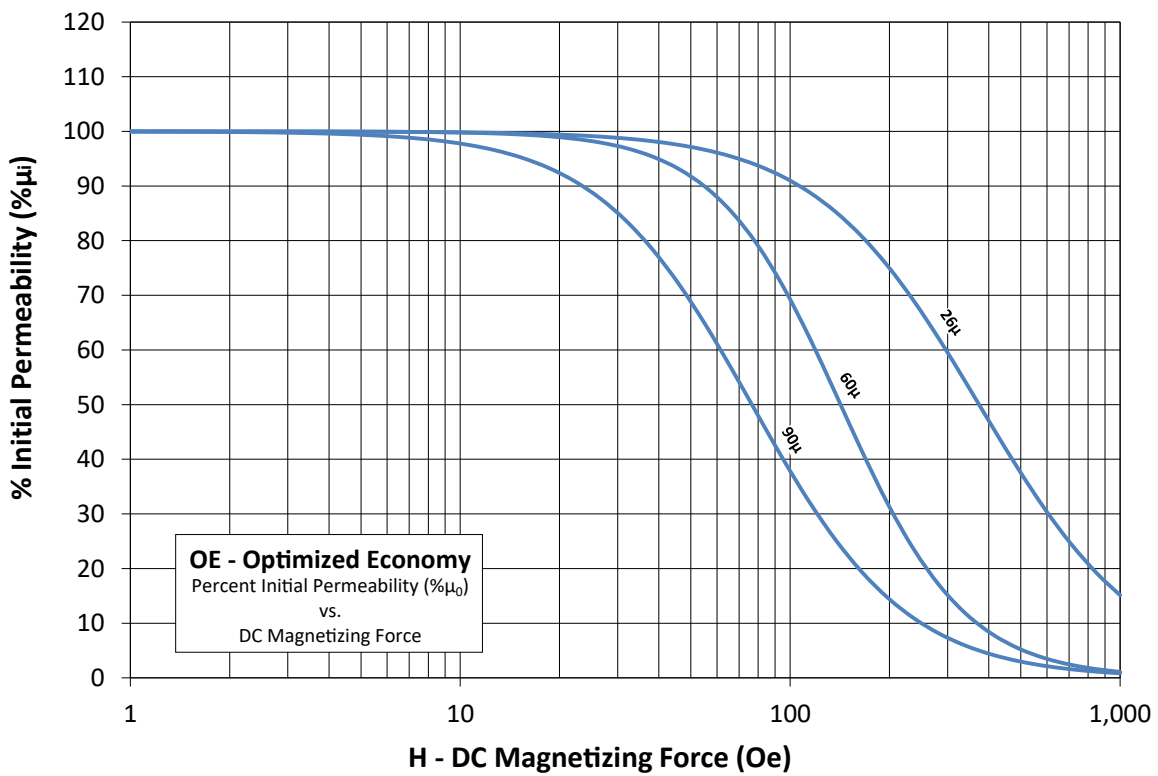
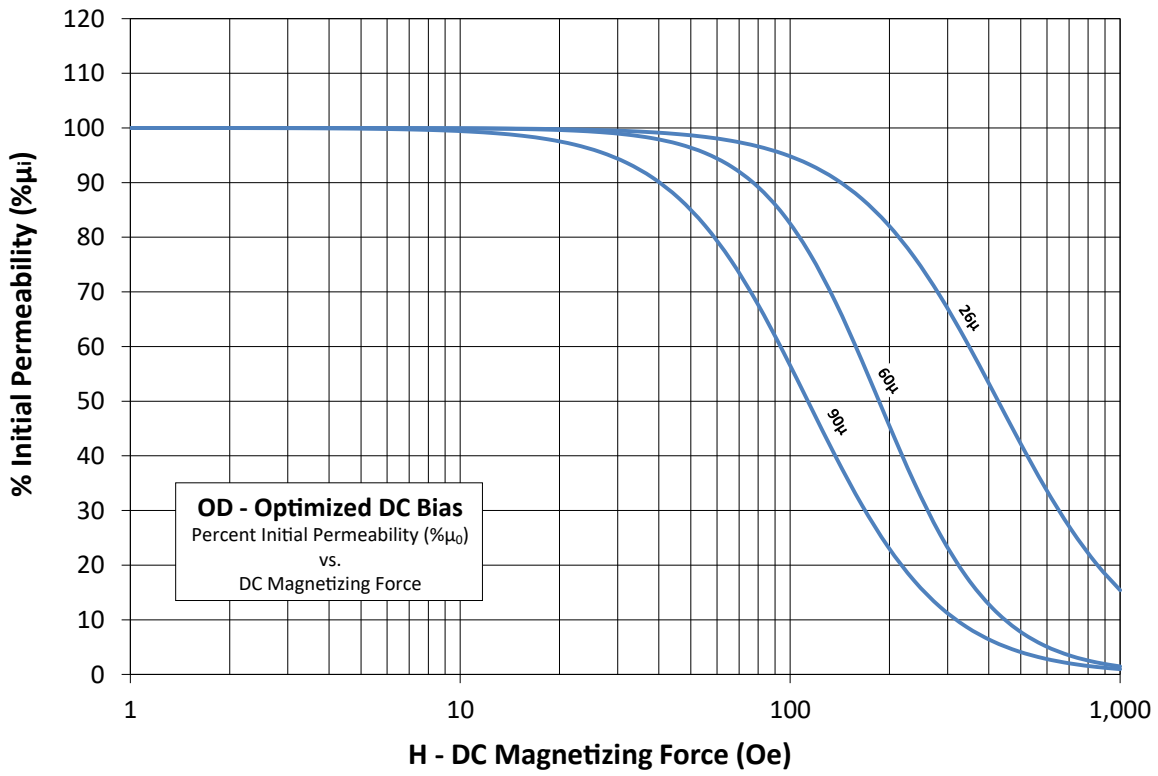
The standard box dimensions are 30.5 x 30.5 x 12.7cm (12 x 12 x 5in.) Part quantity per box can be located on part detail pages.



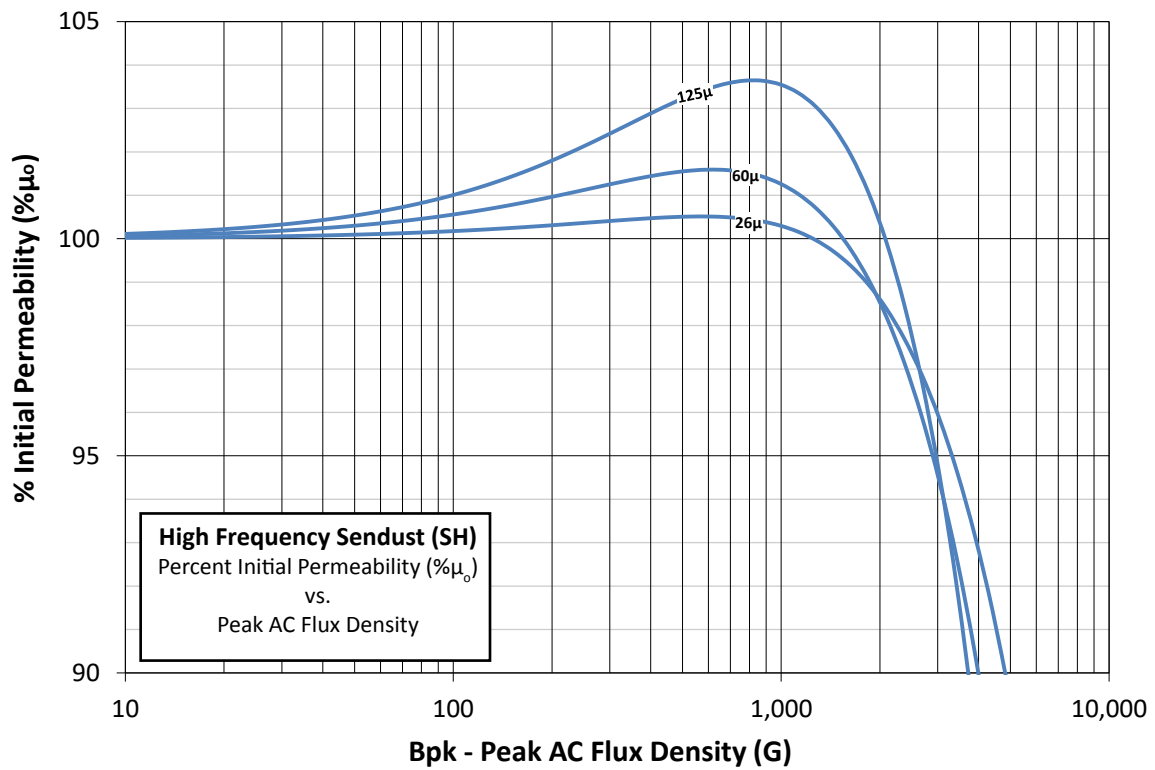
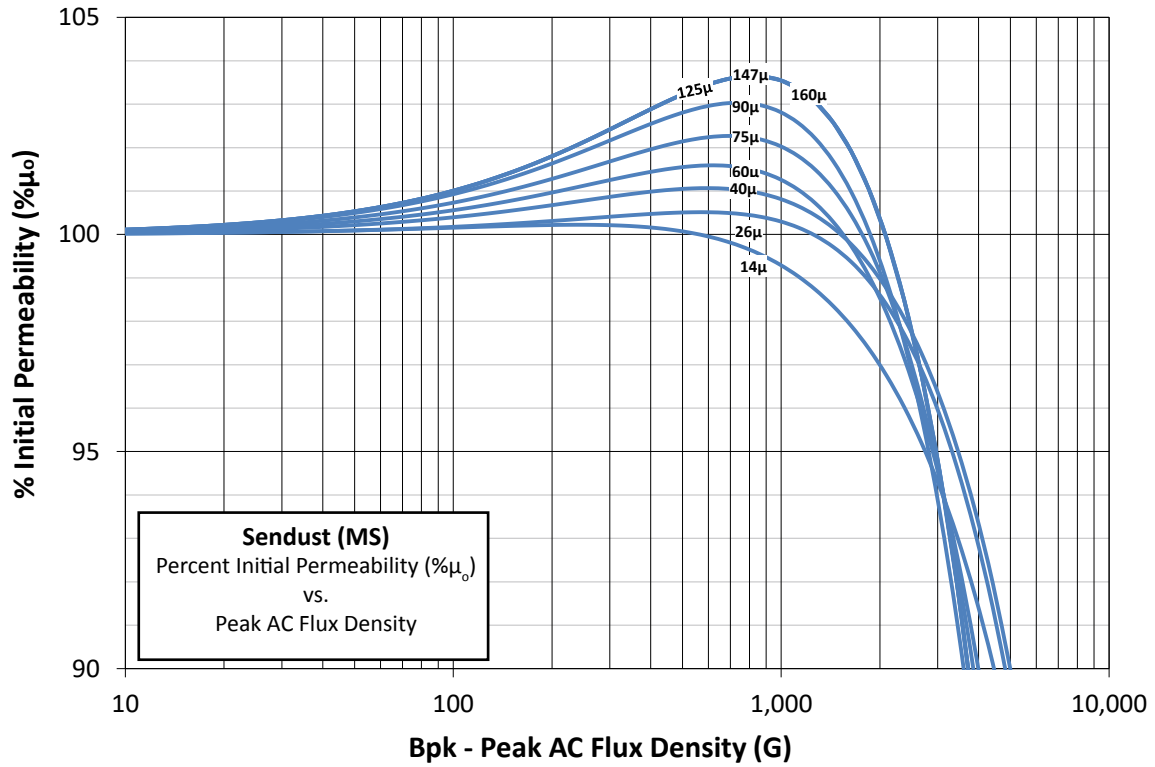


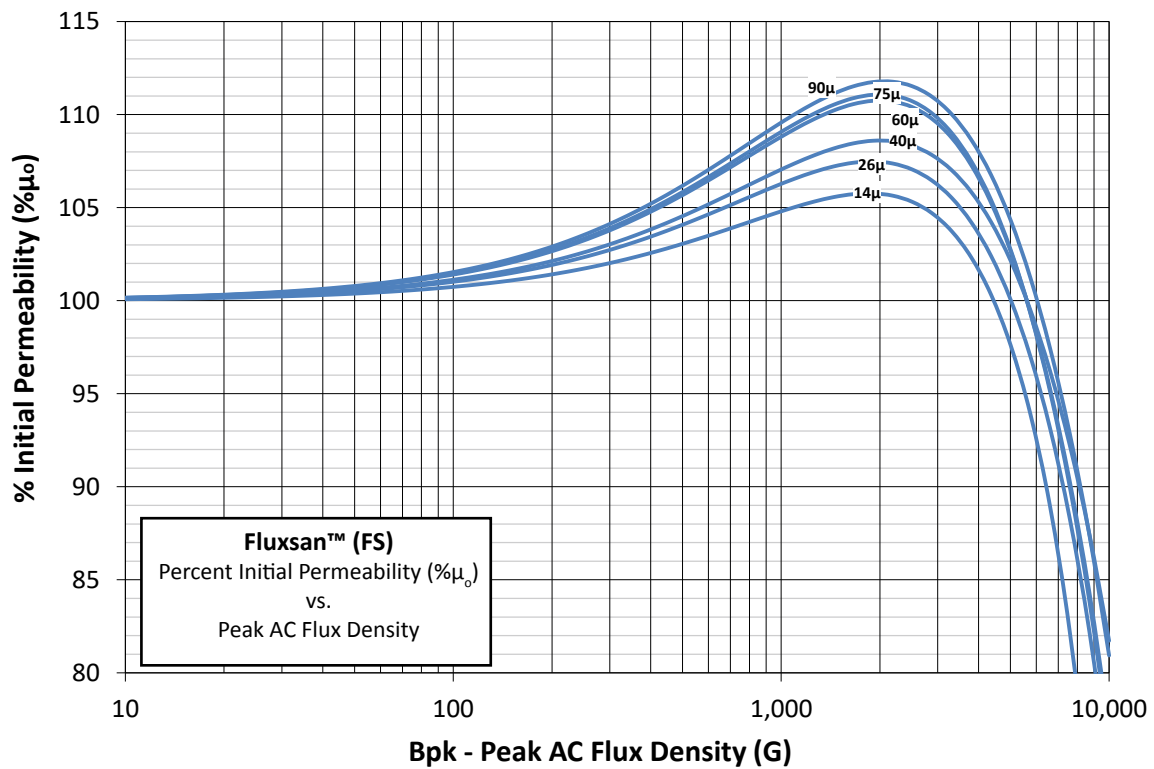
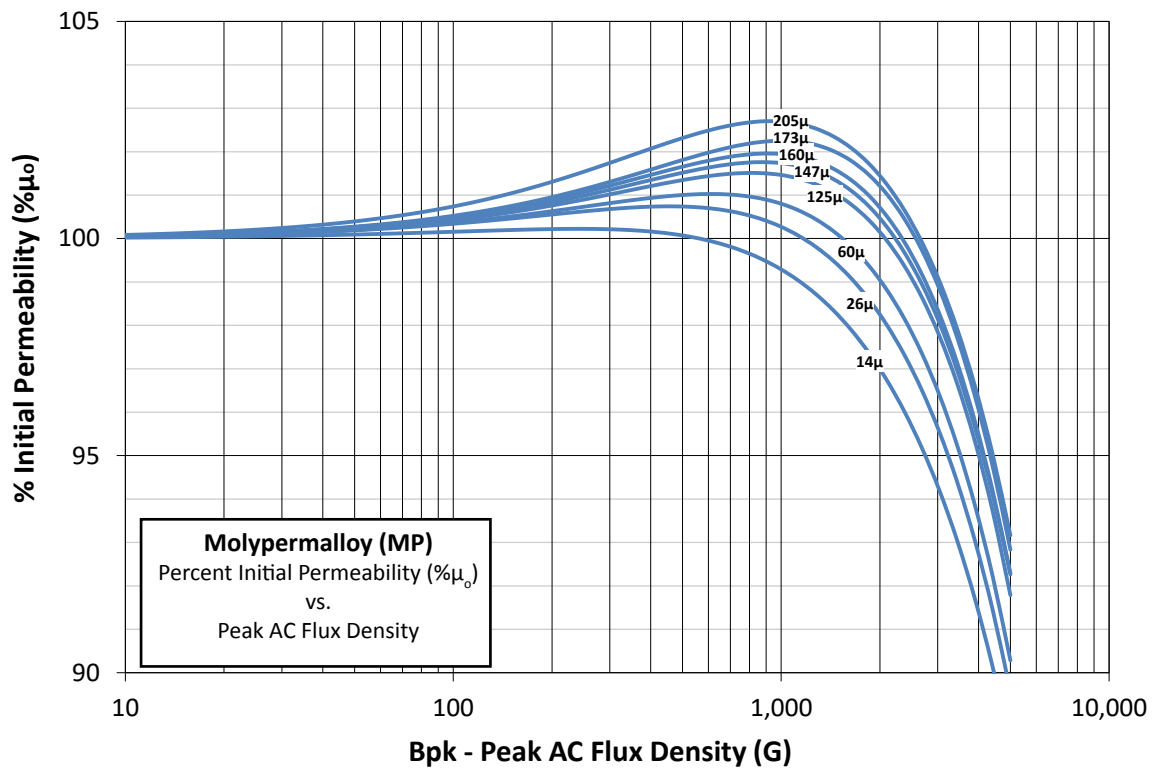


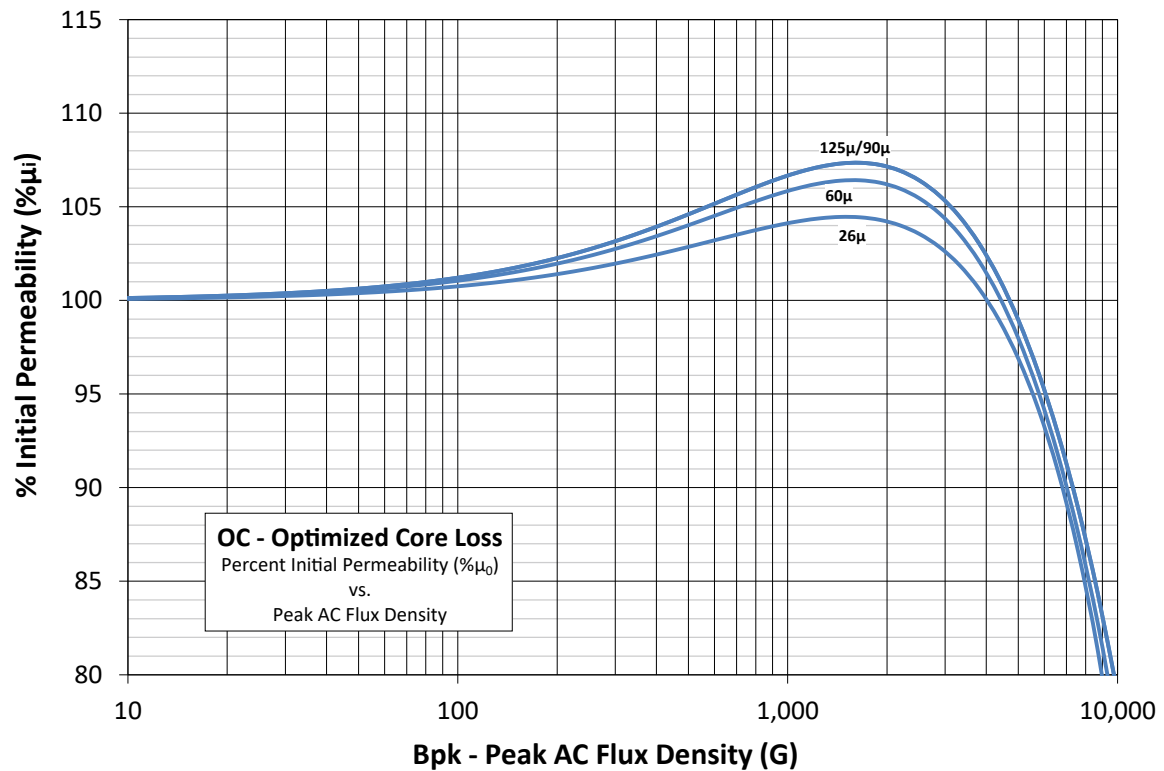
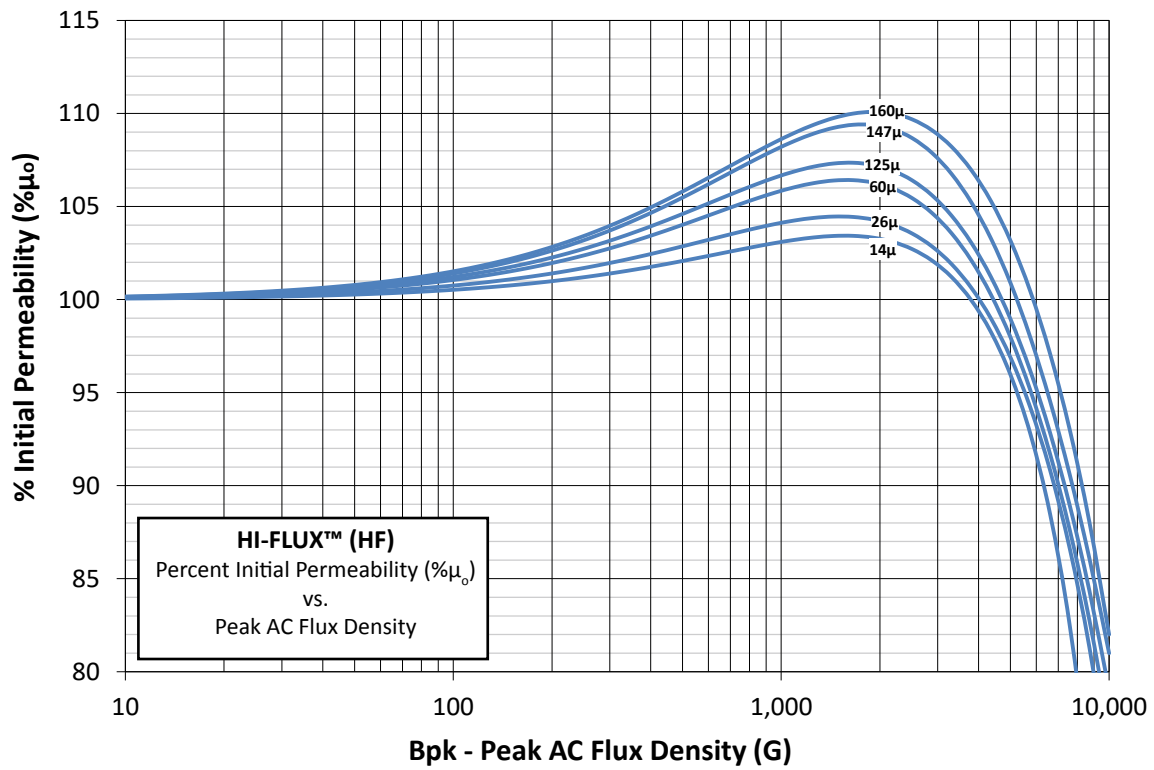


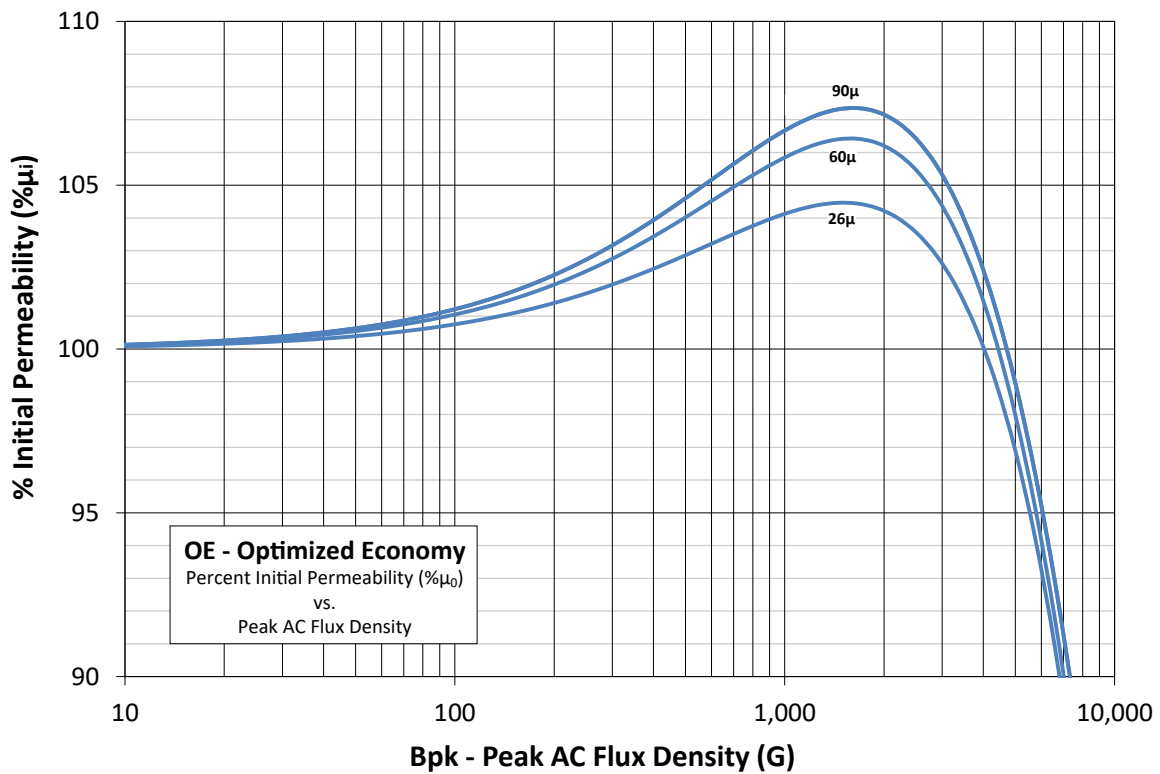
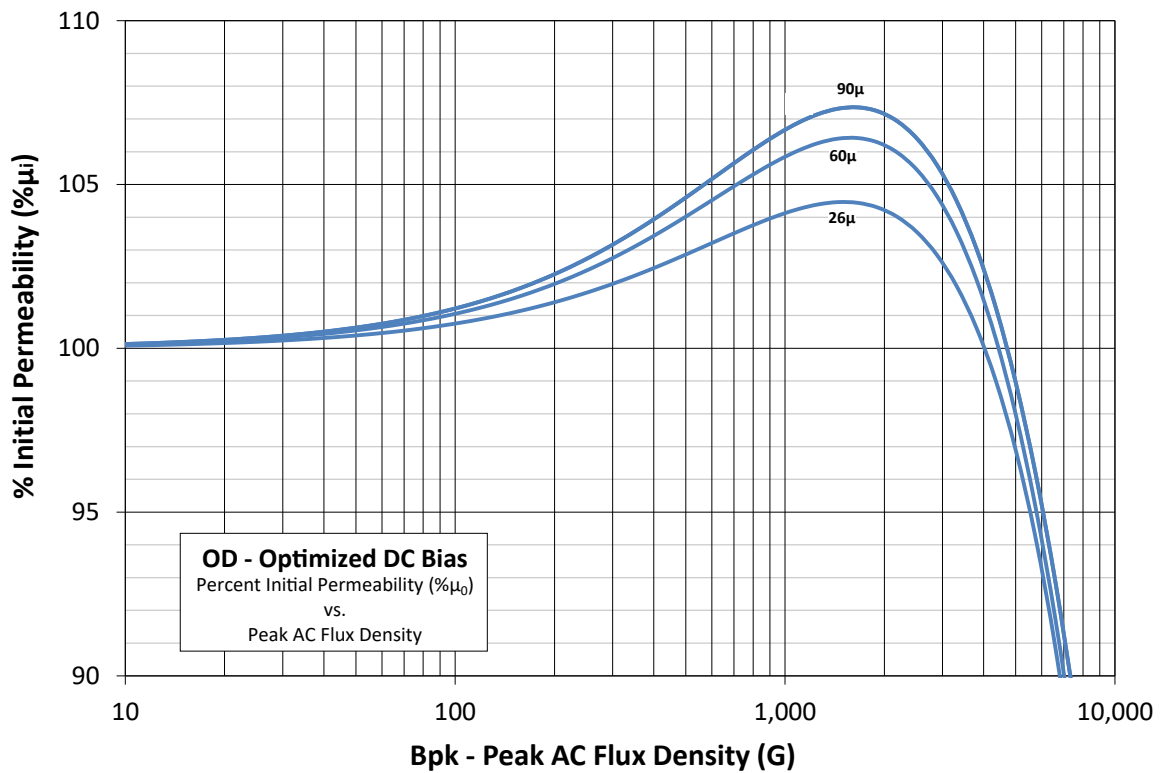




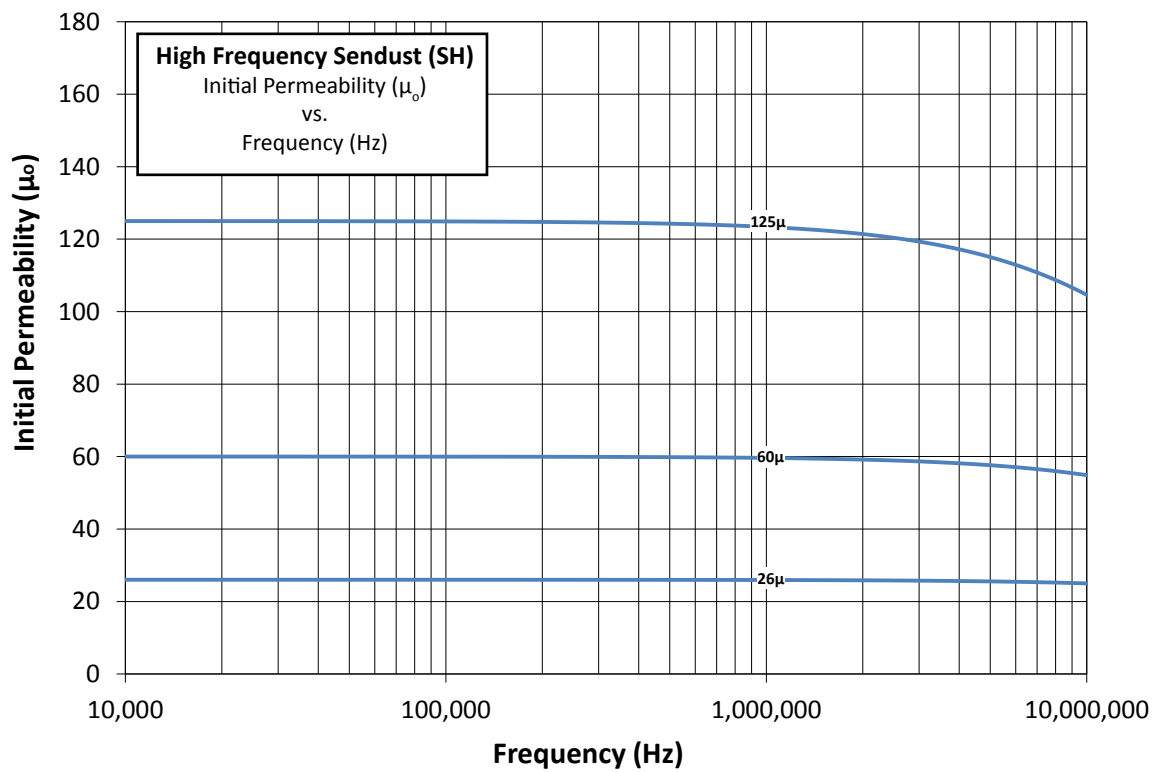
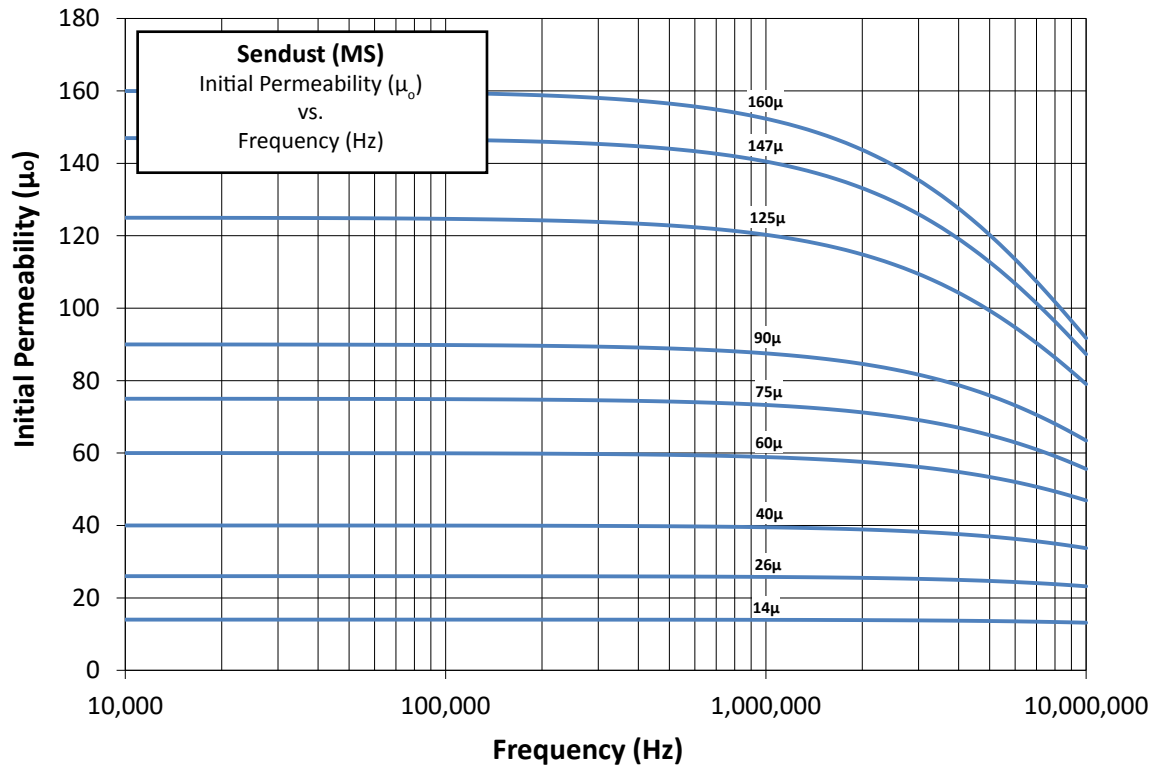


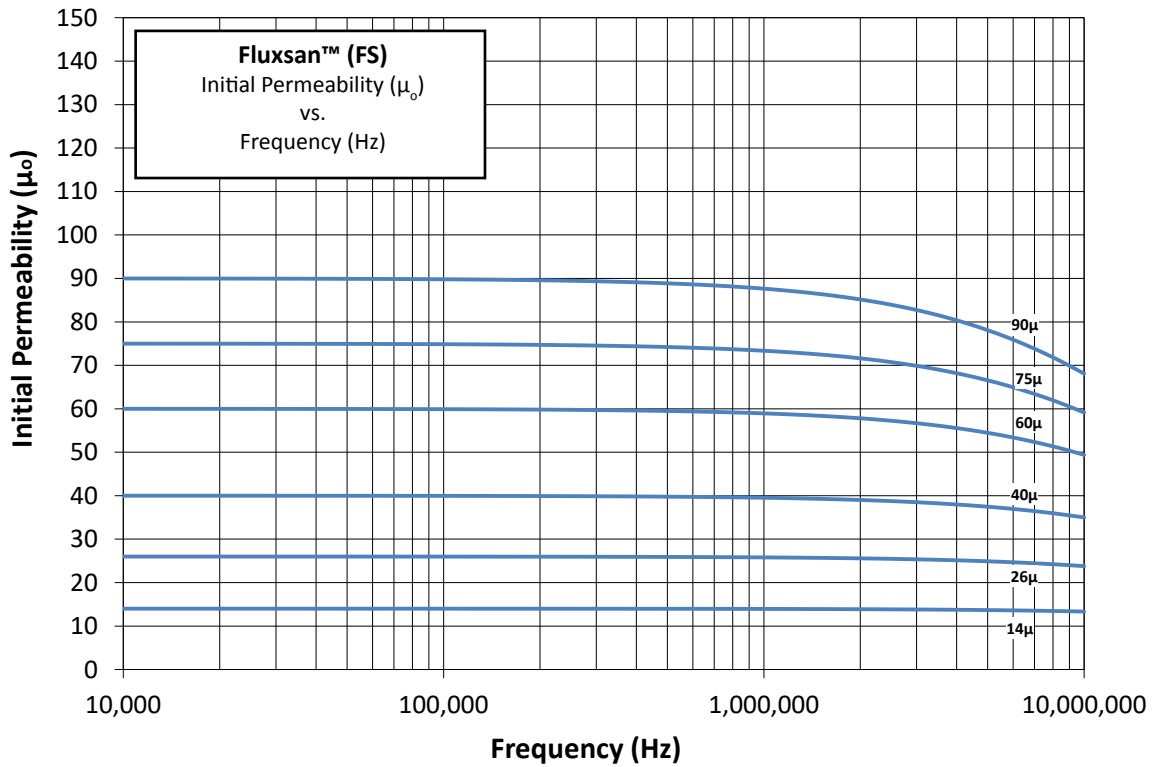
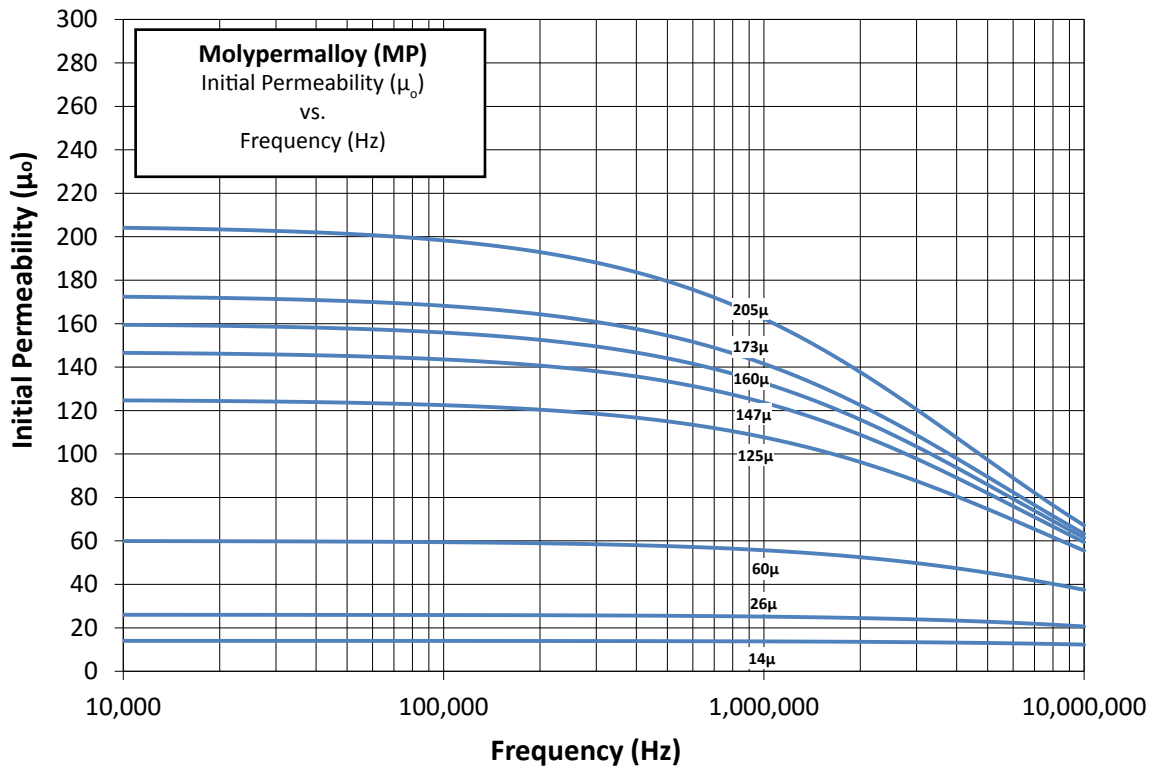


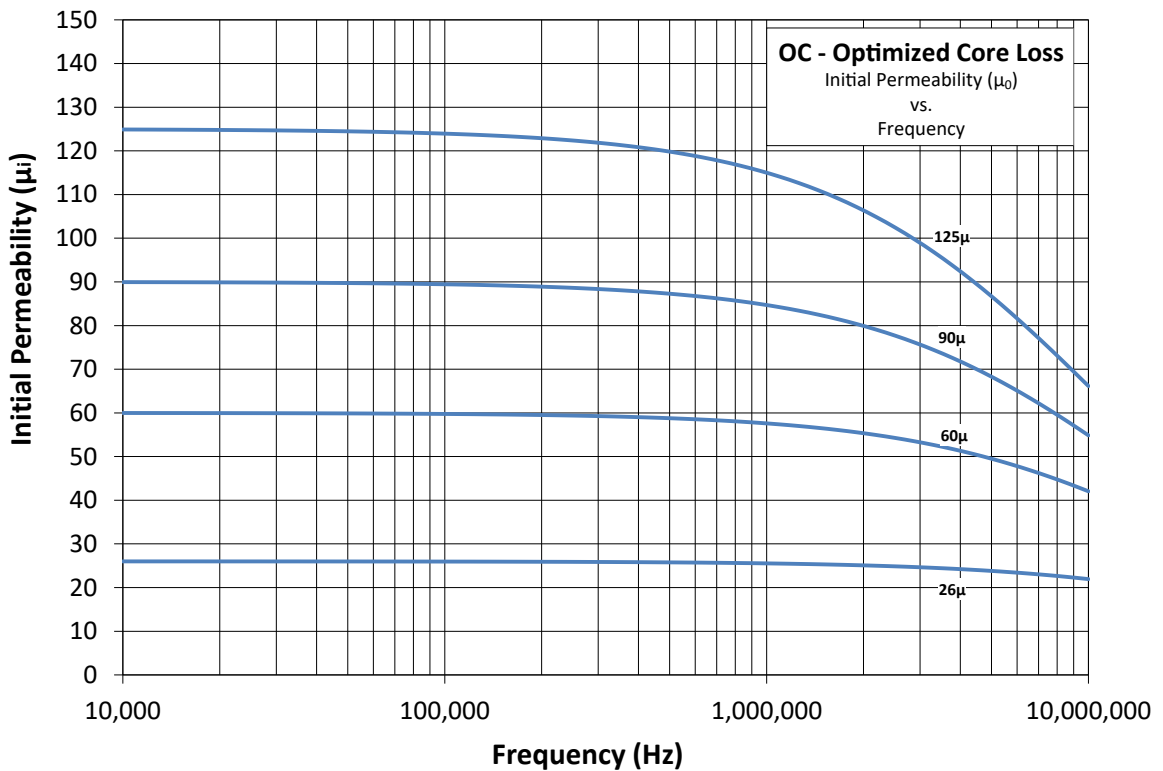
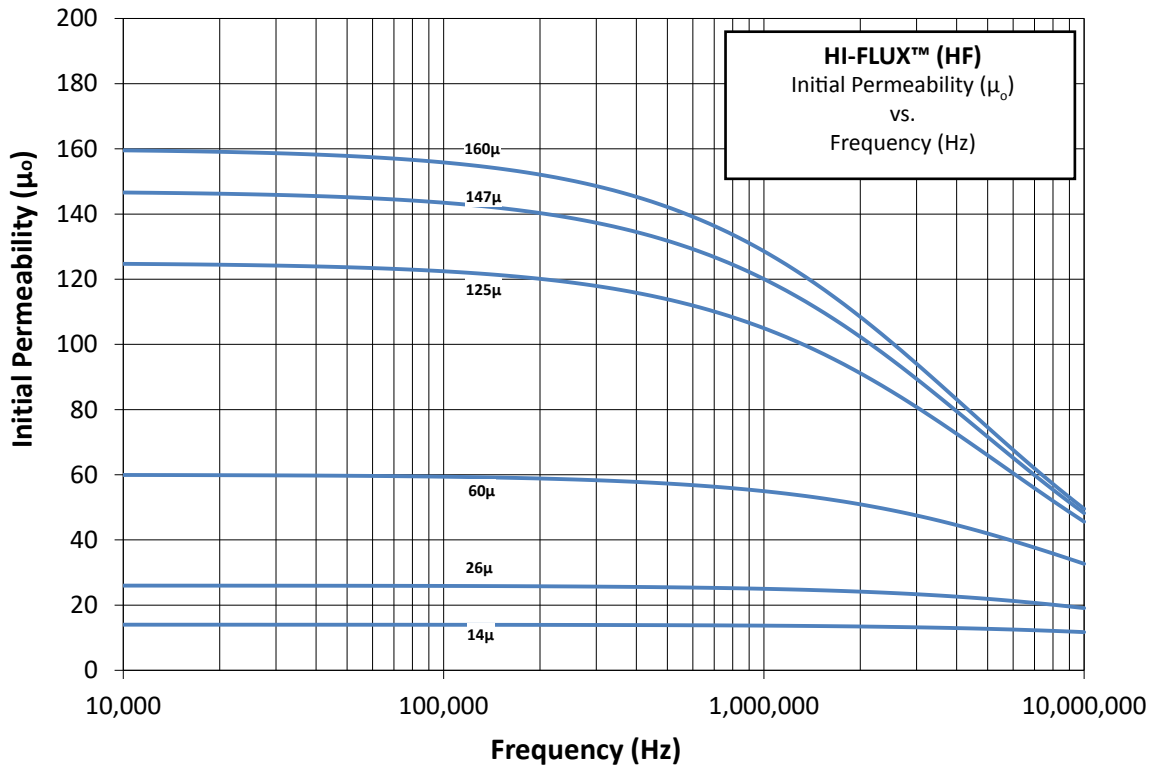


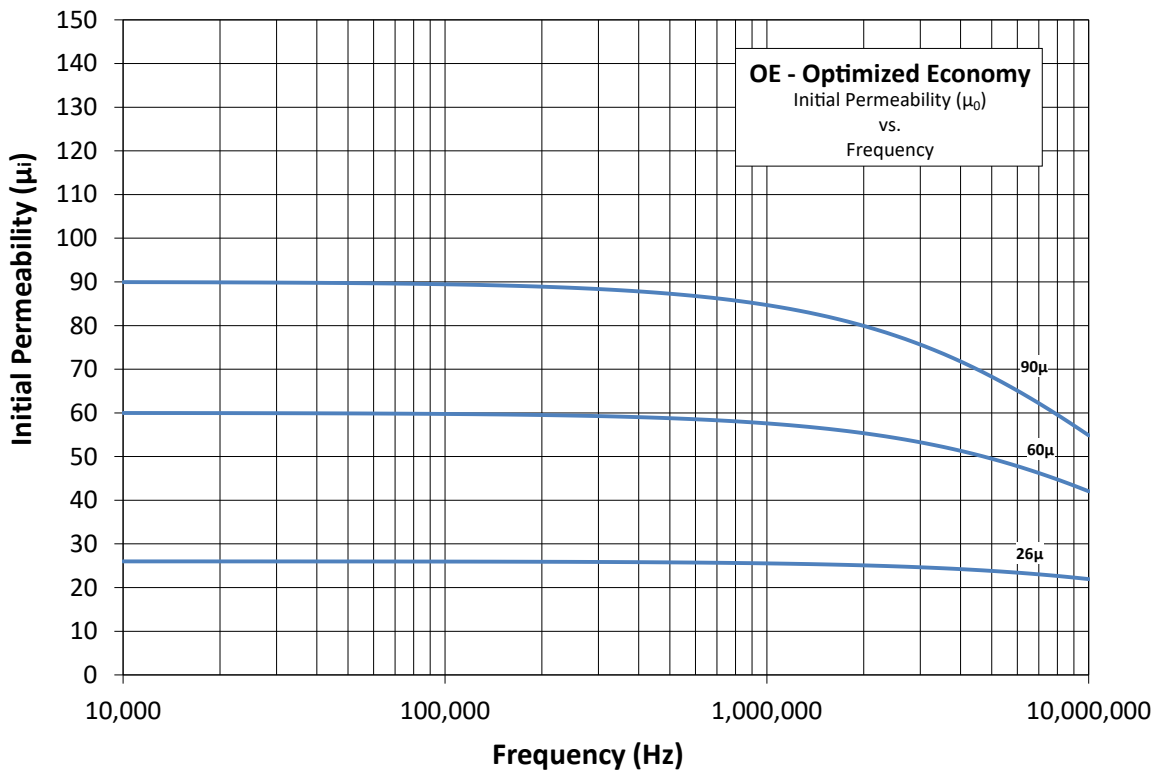
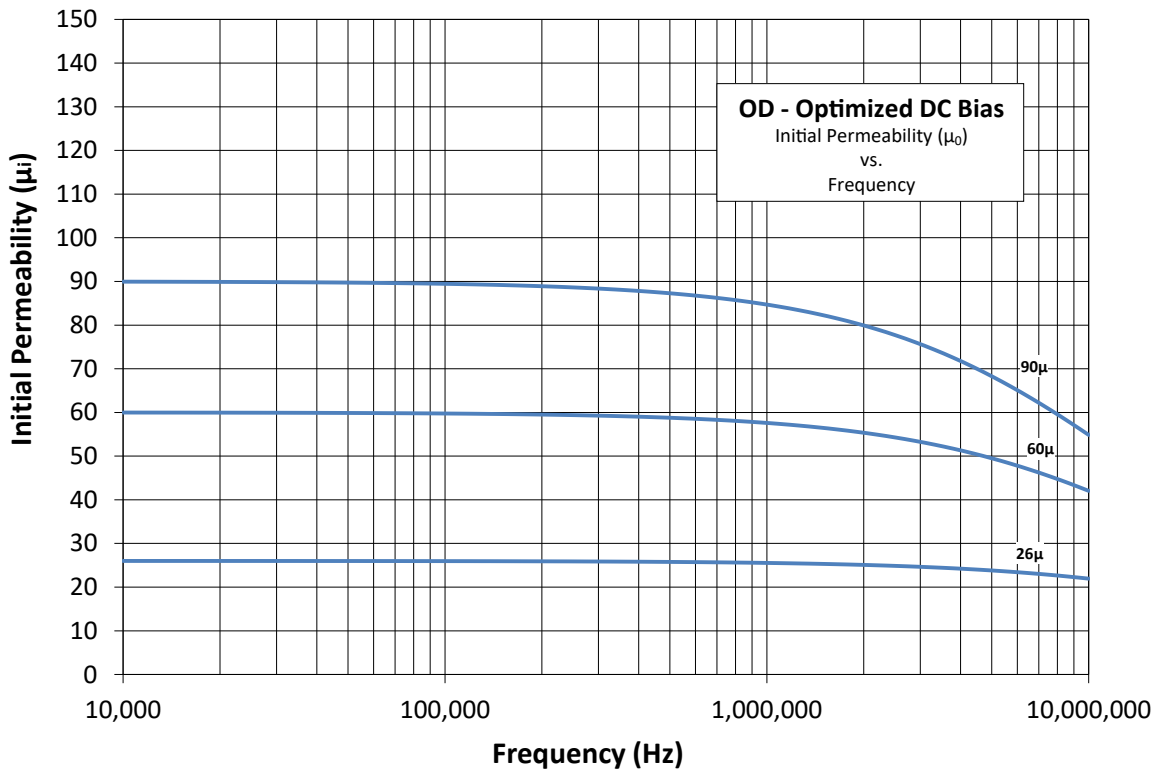




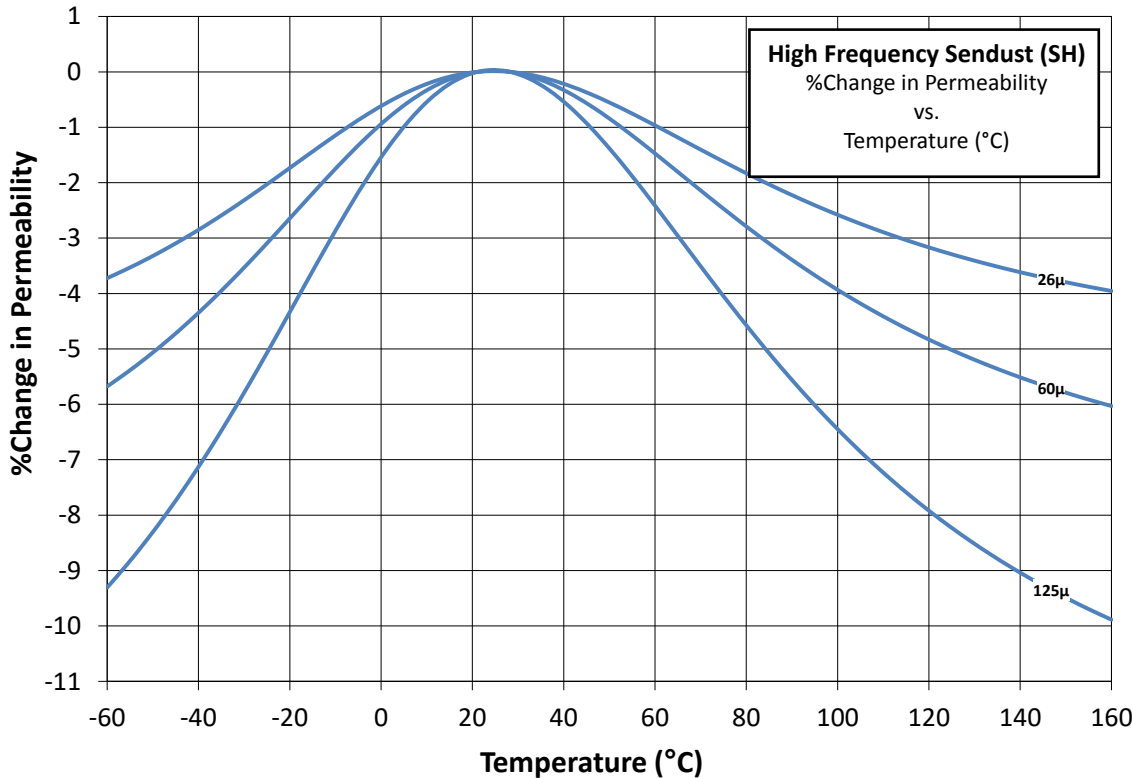
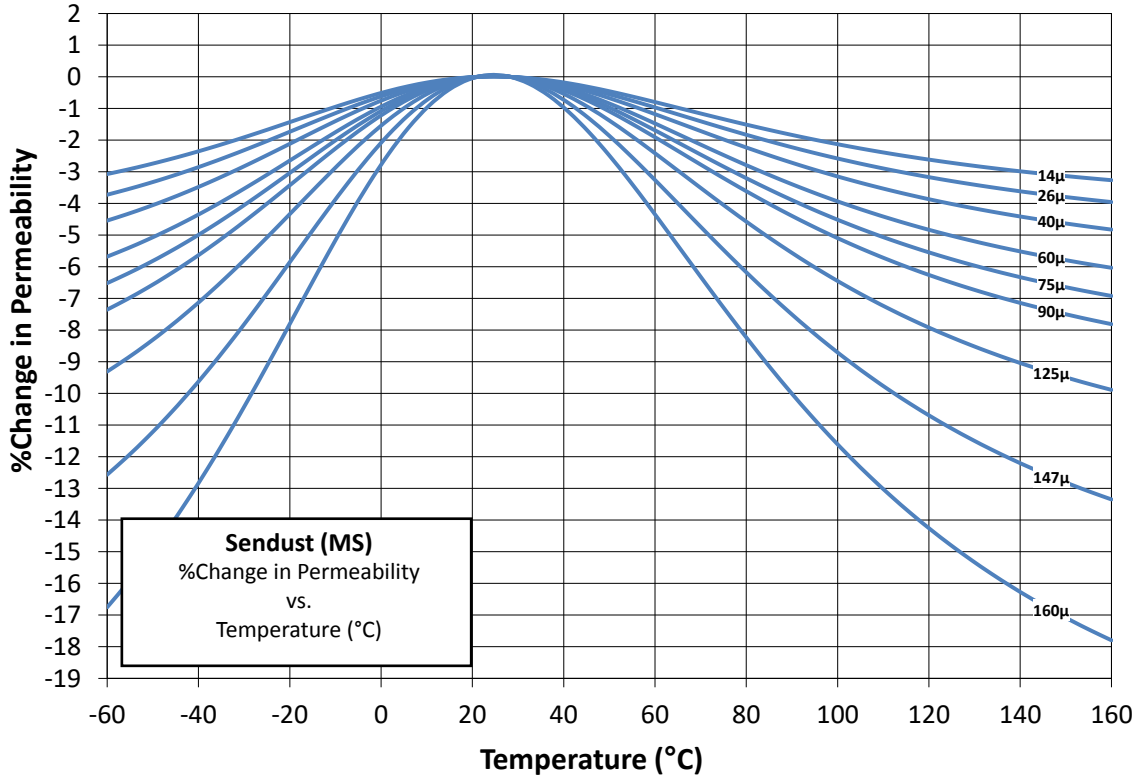


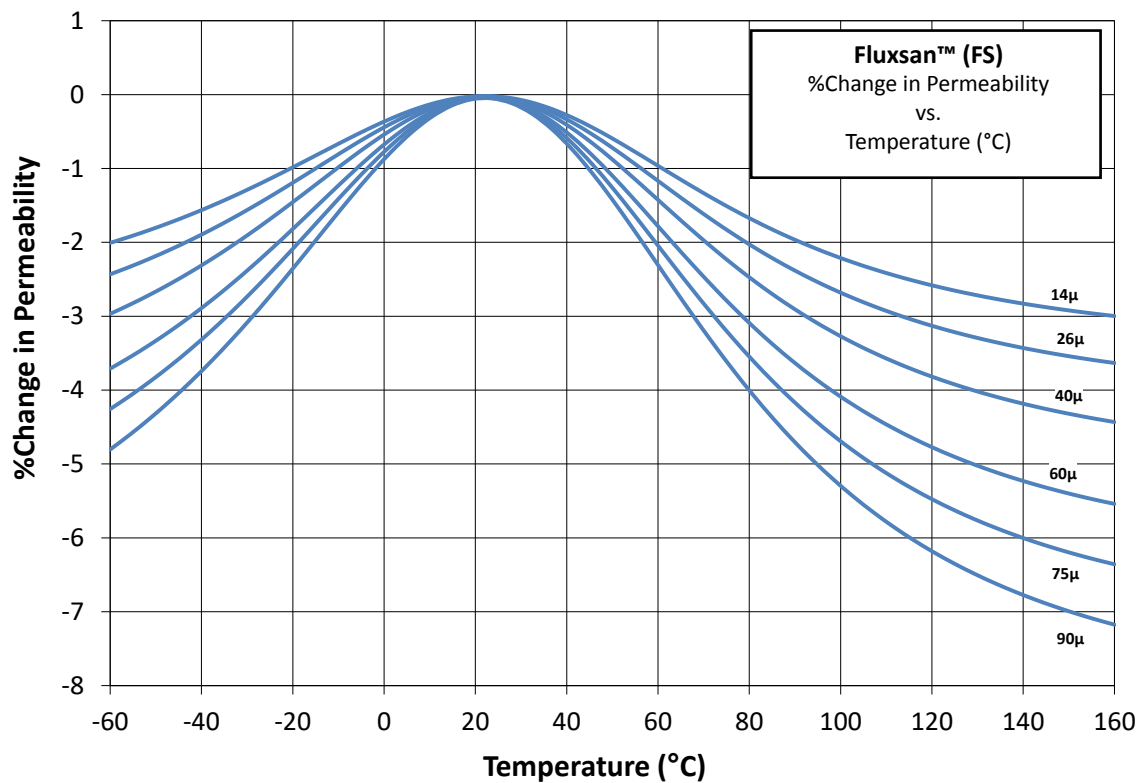
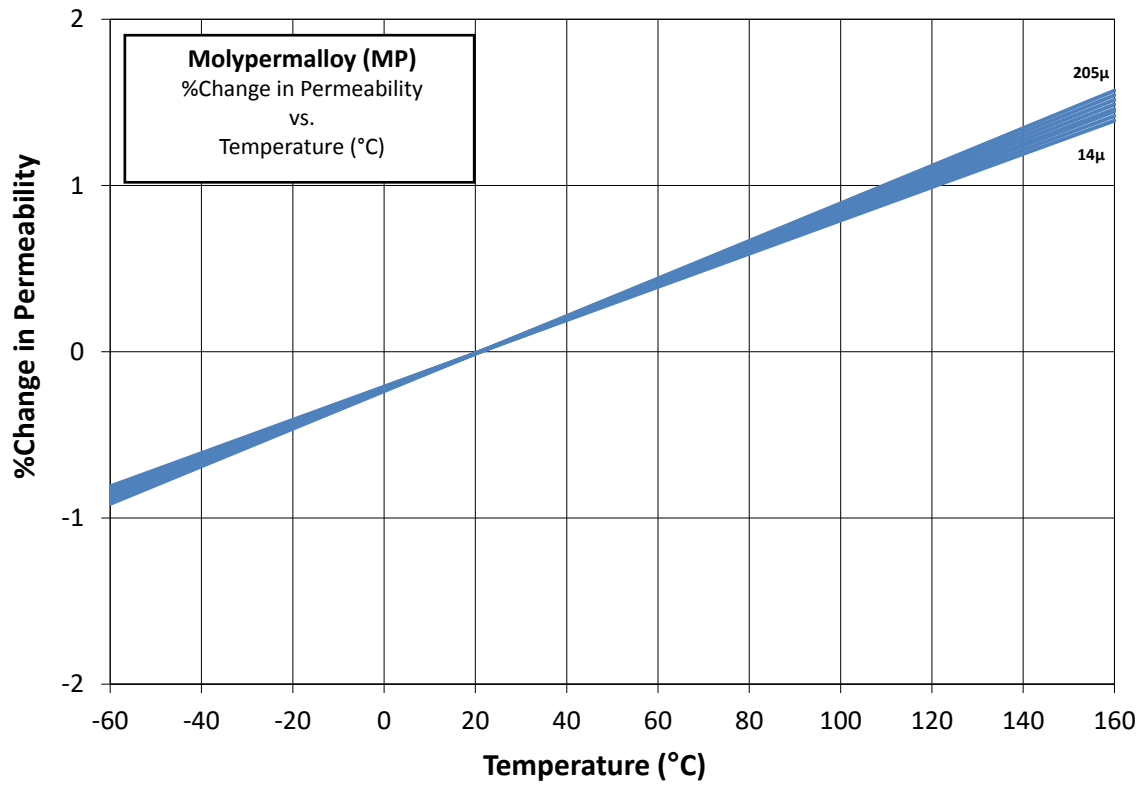


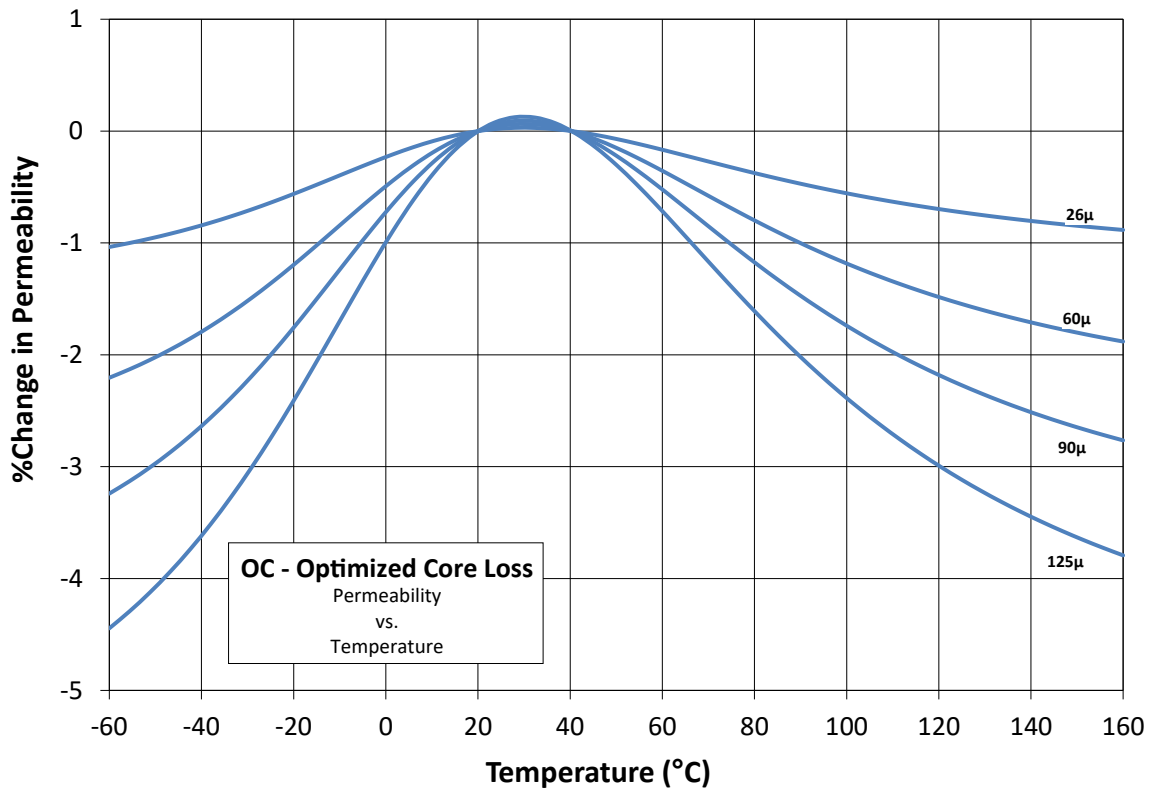
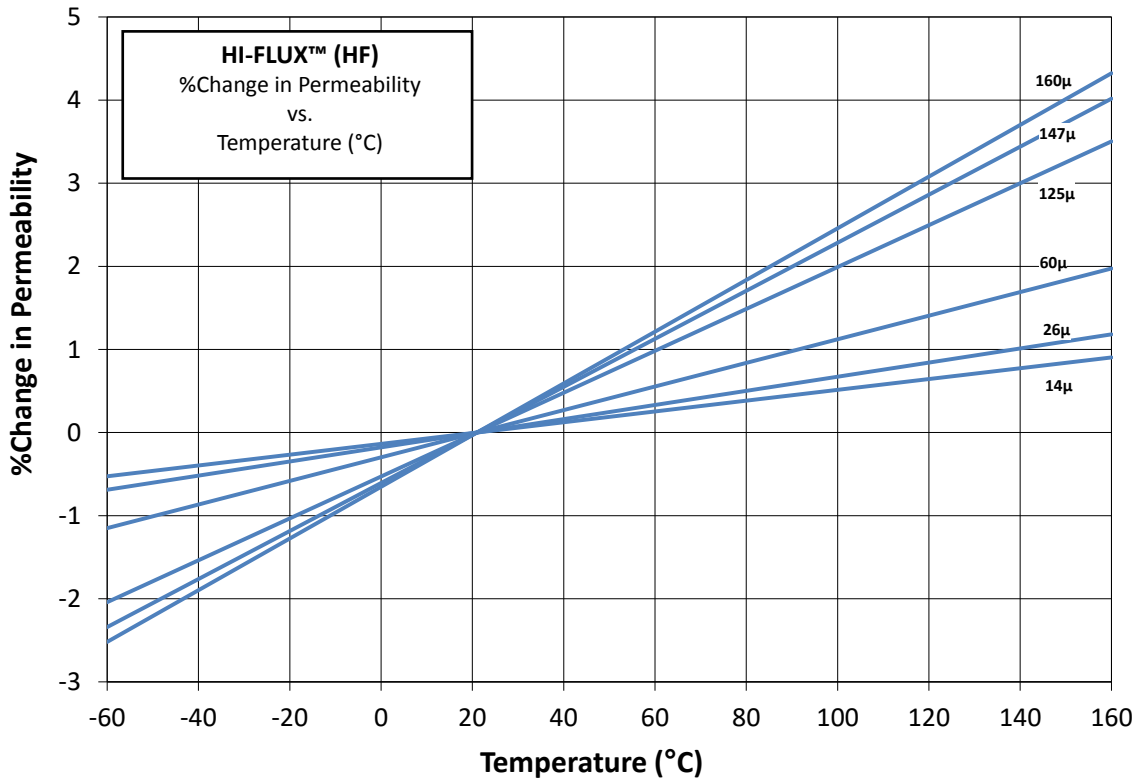


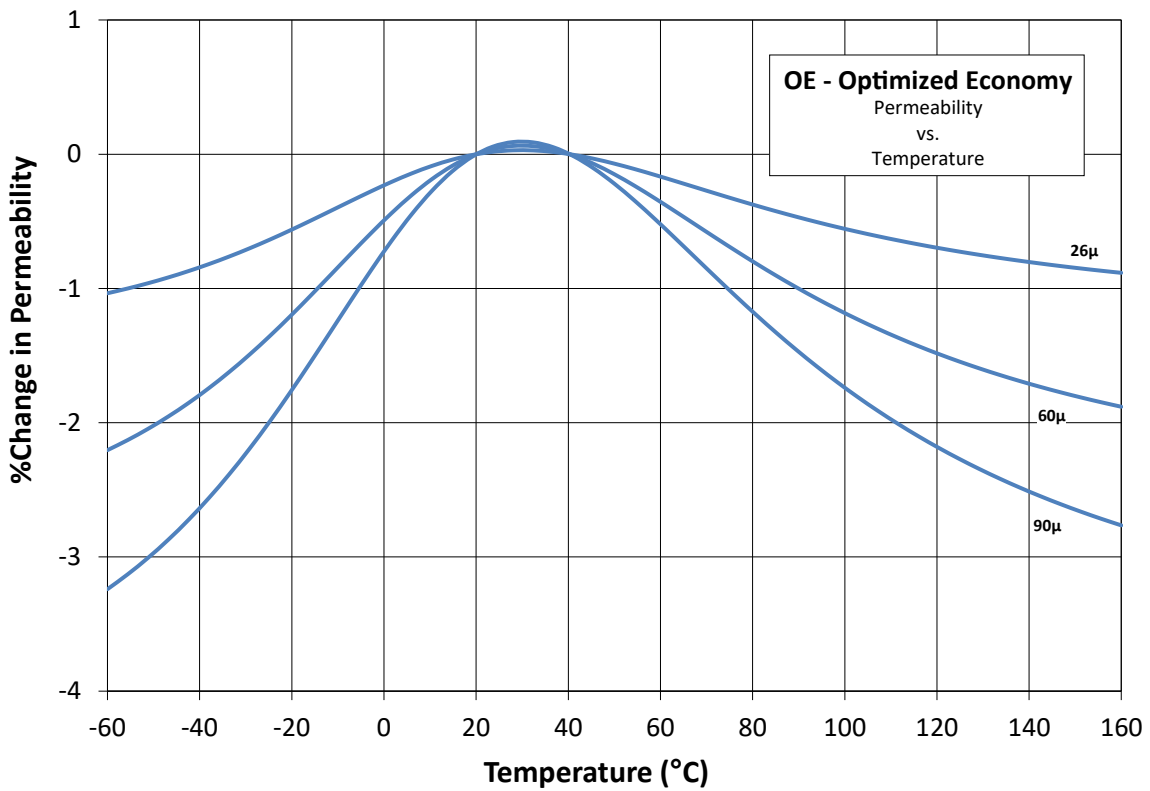
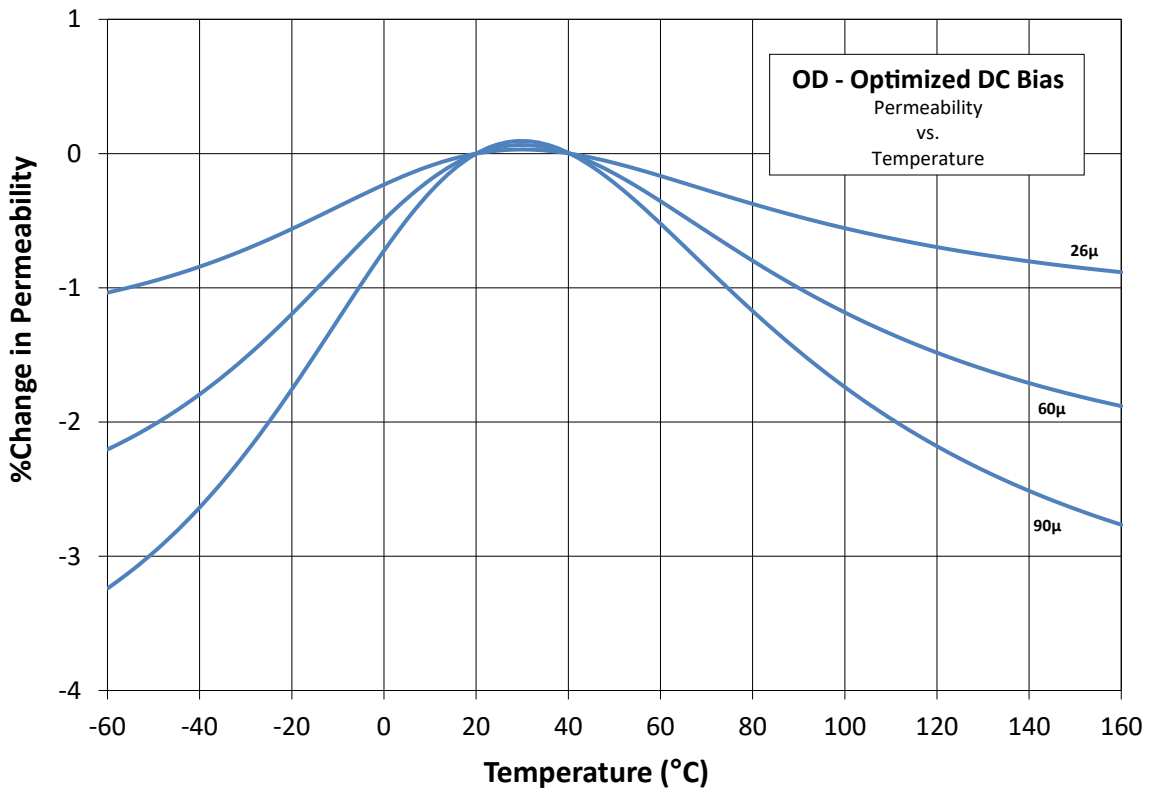




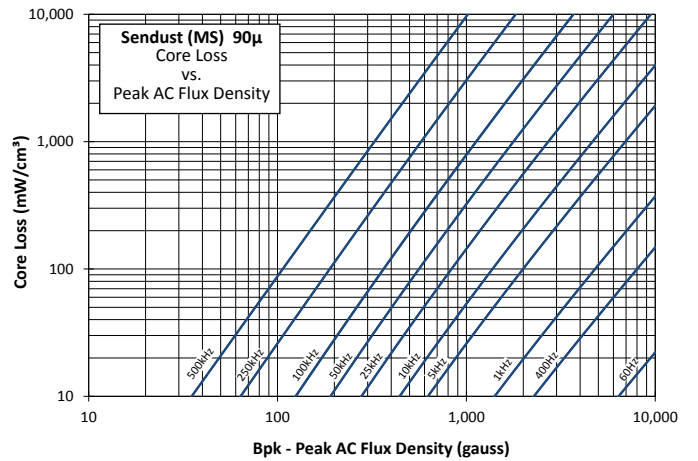
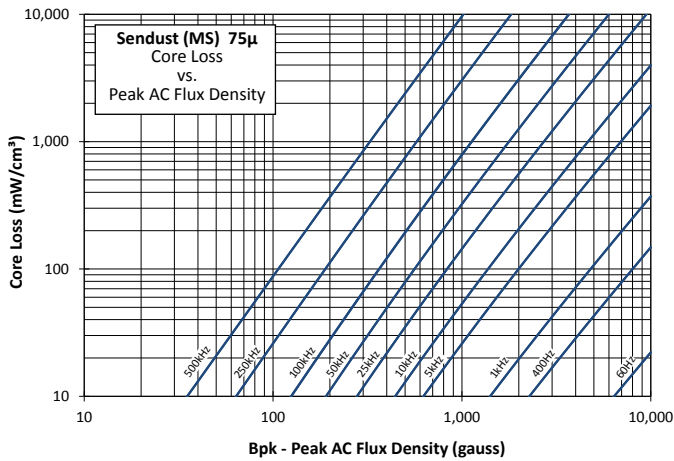
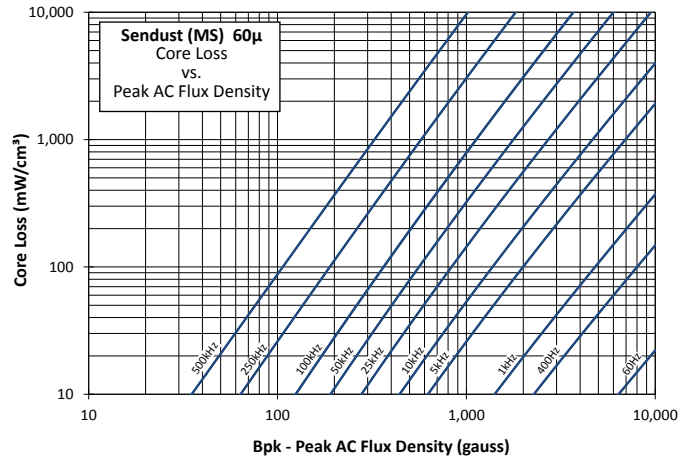
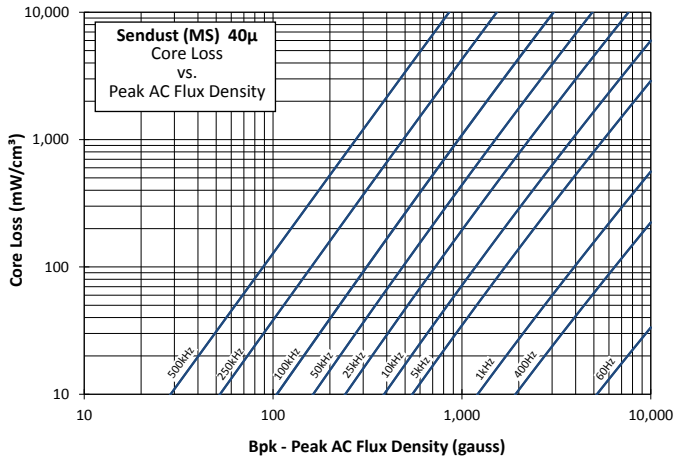
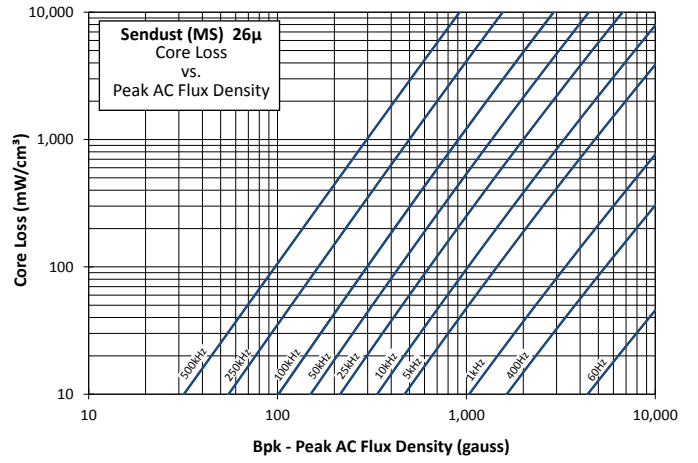
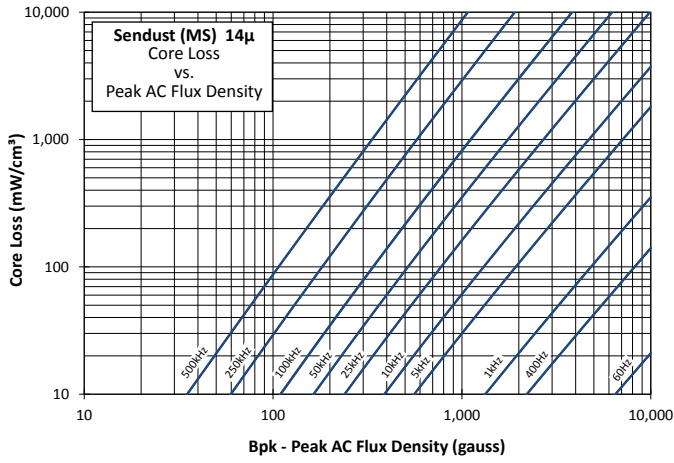




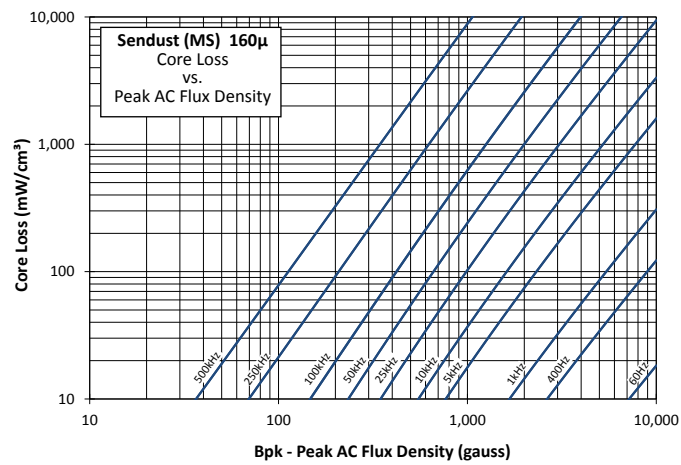
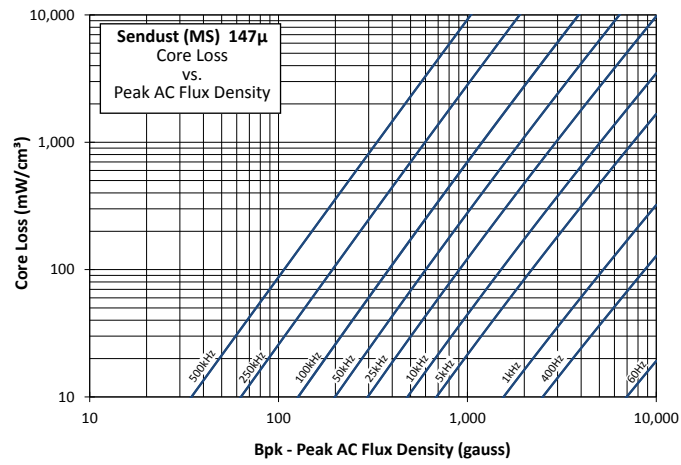
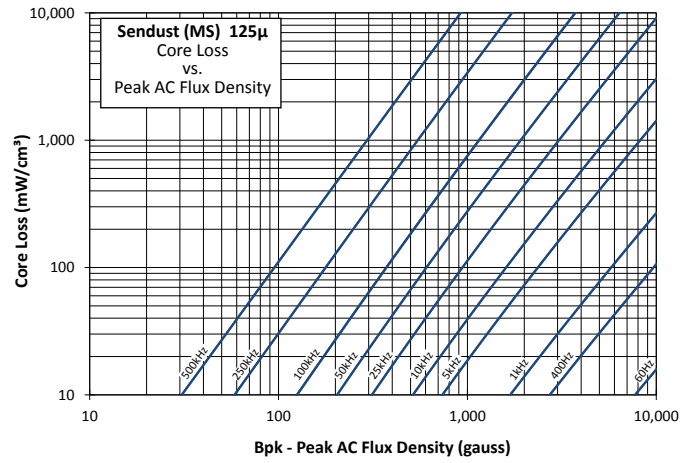


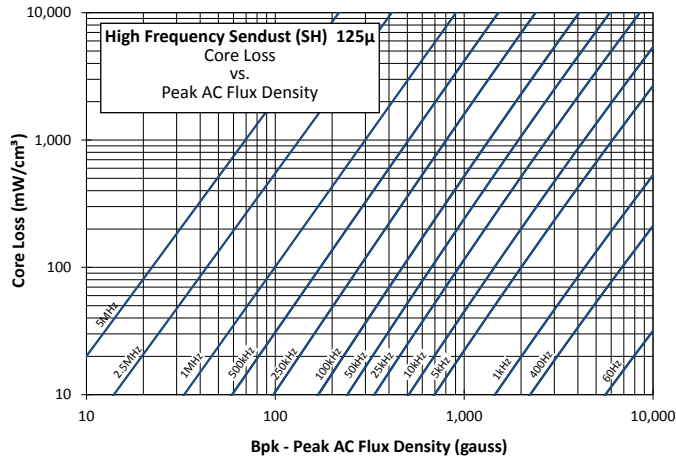
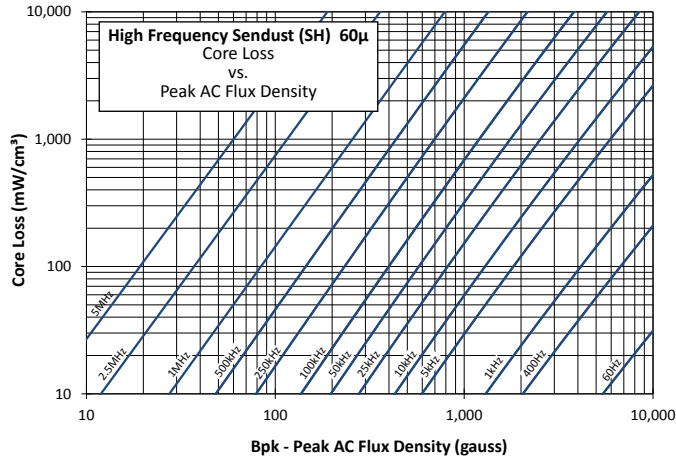
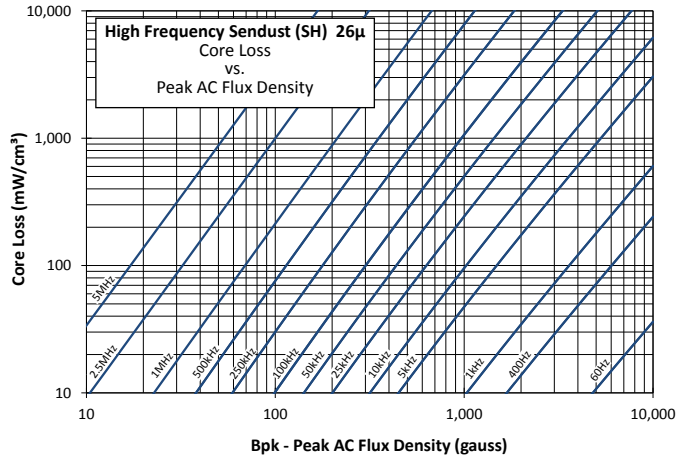




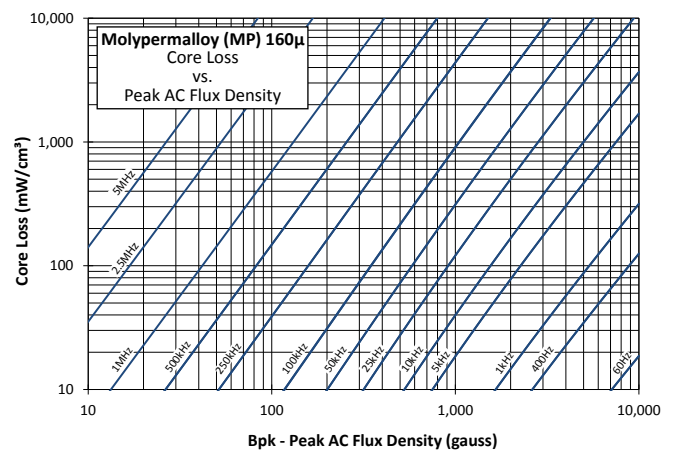
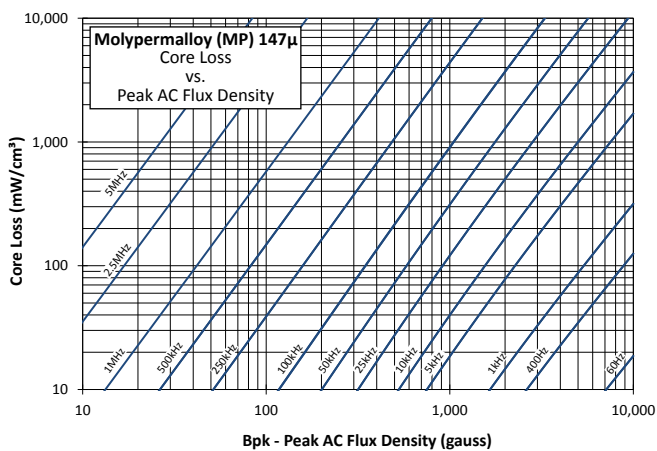
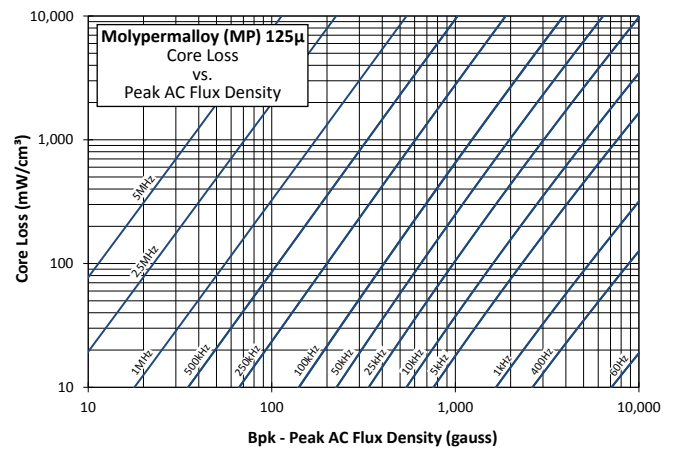
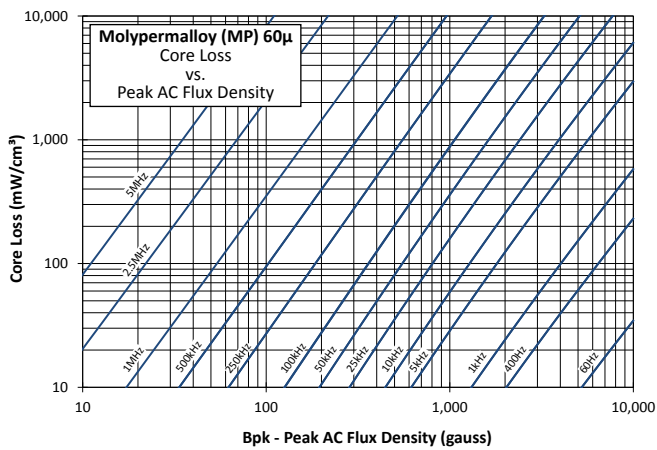
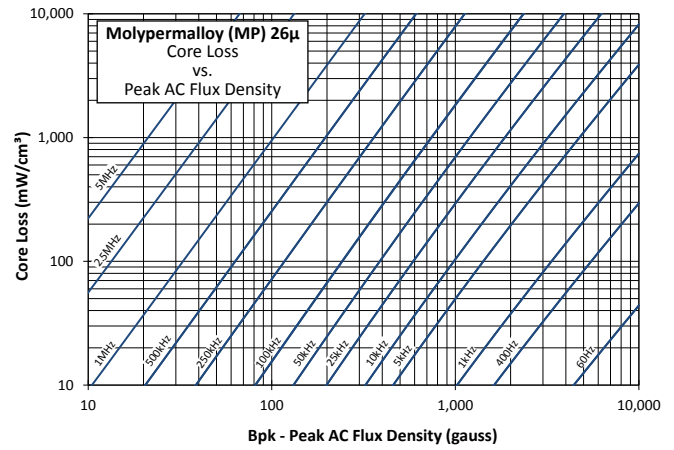
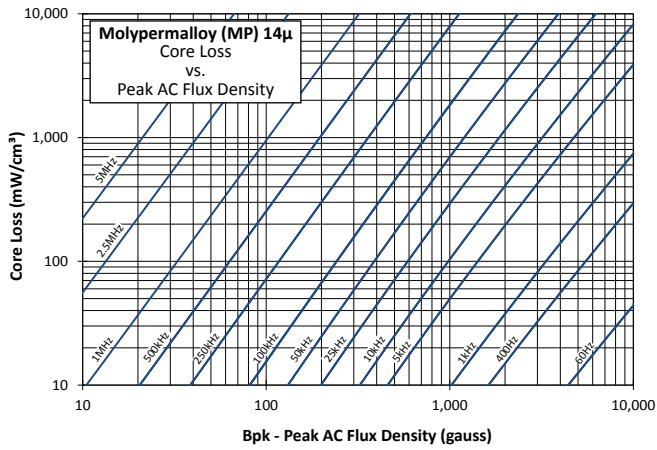


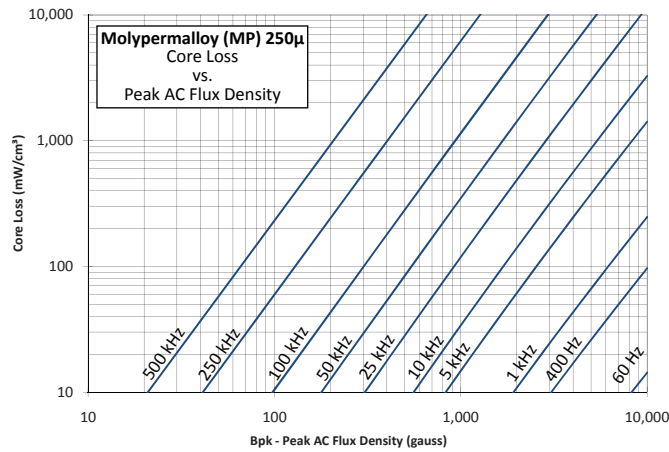
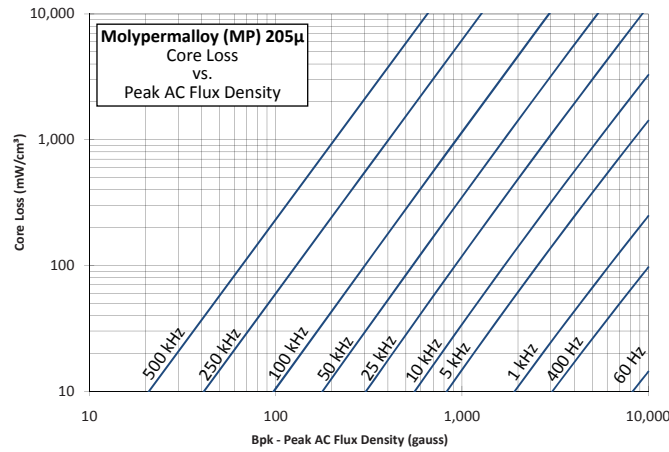
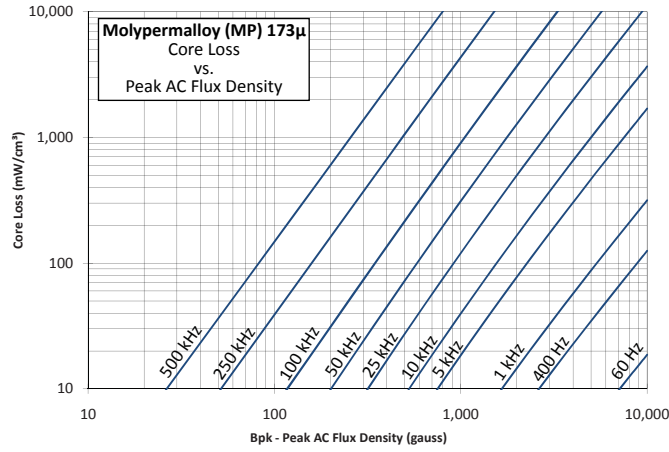
# Sendust (MS) Core Loss

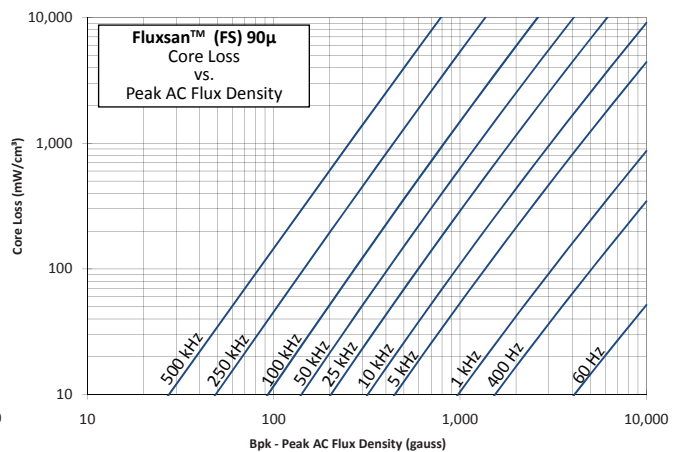
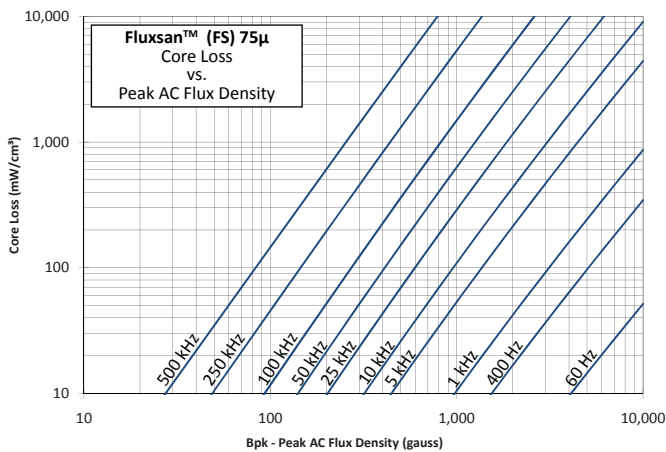
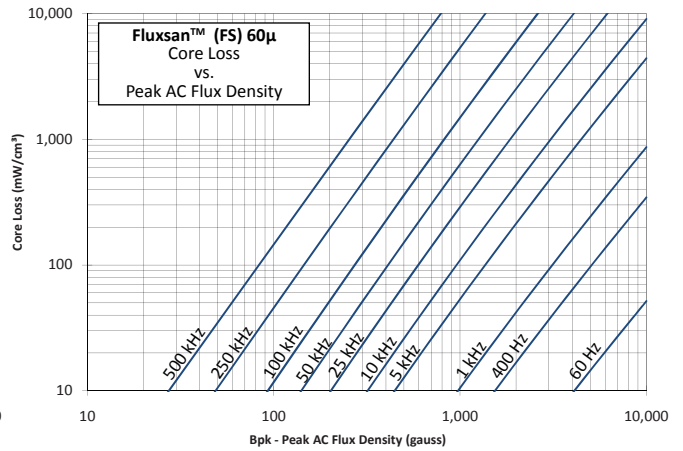
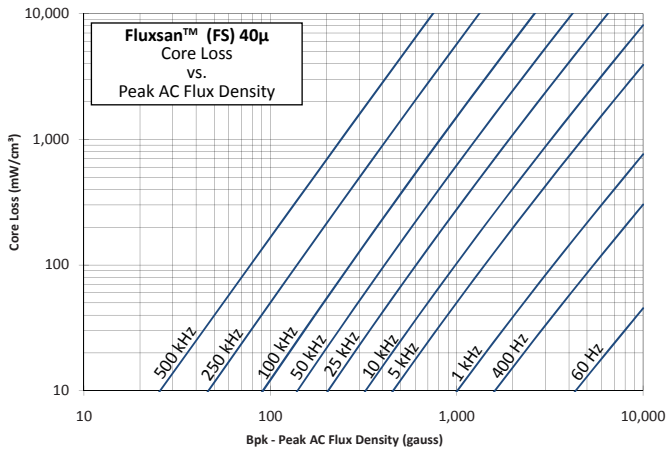
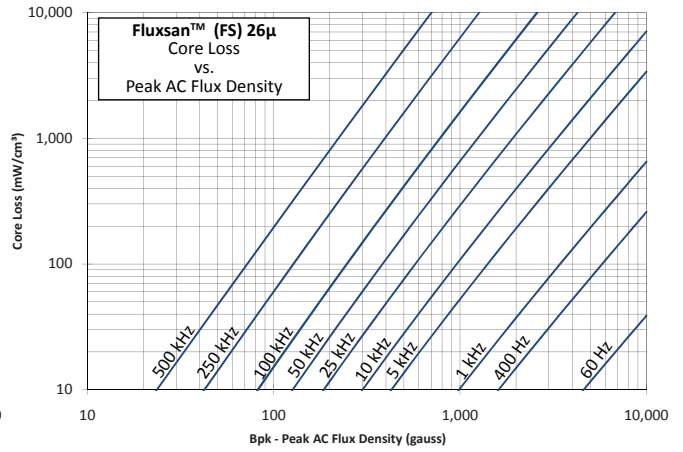
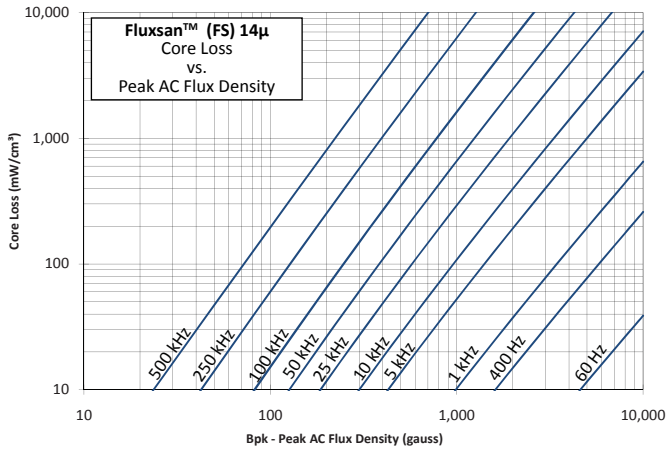


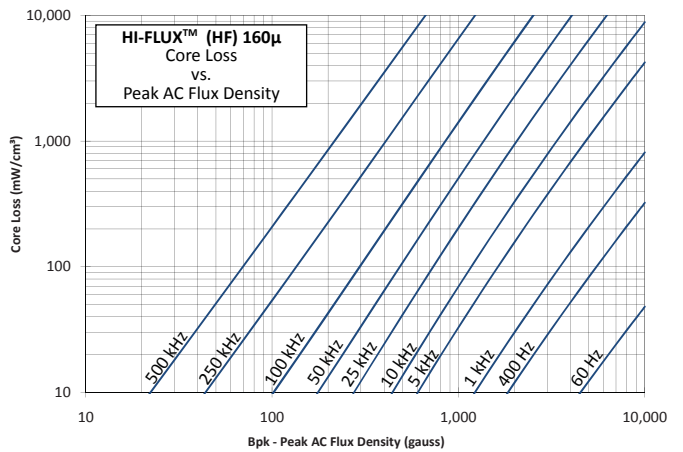
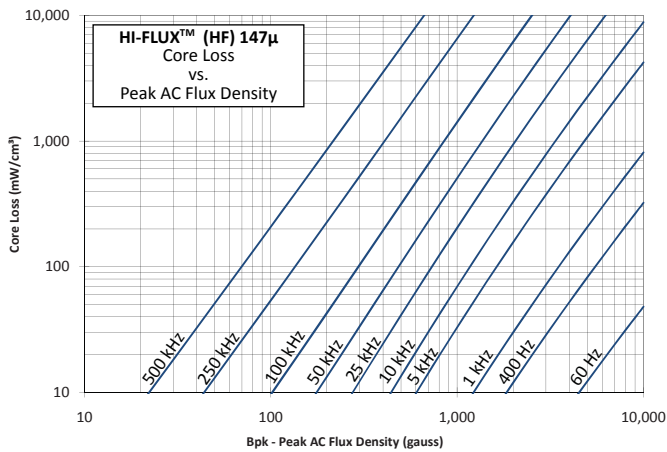
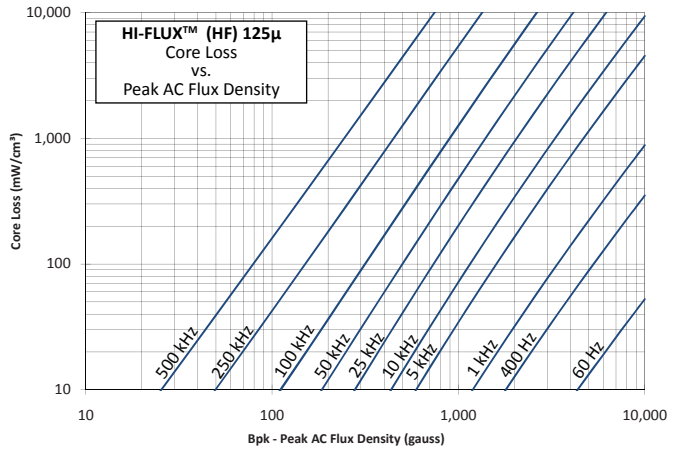
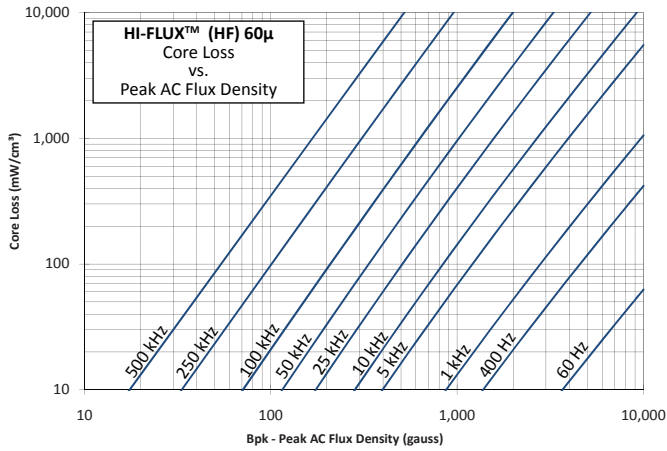
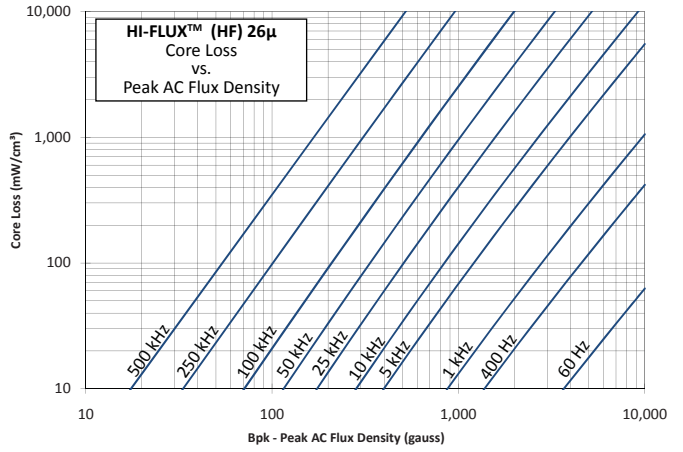
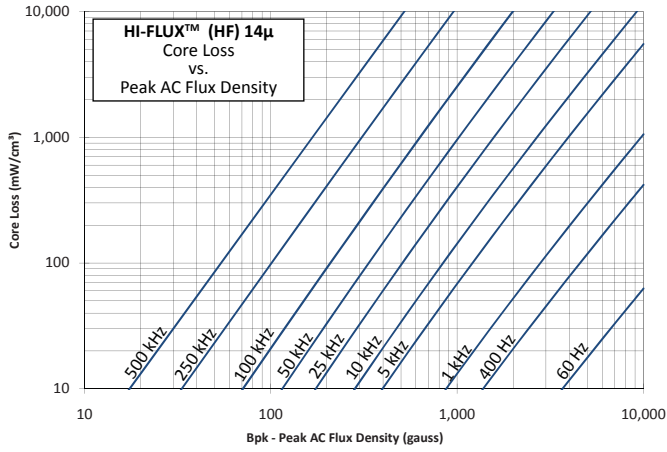


# Molypermalloy (MP) Core Loss



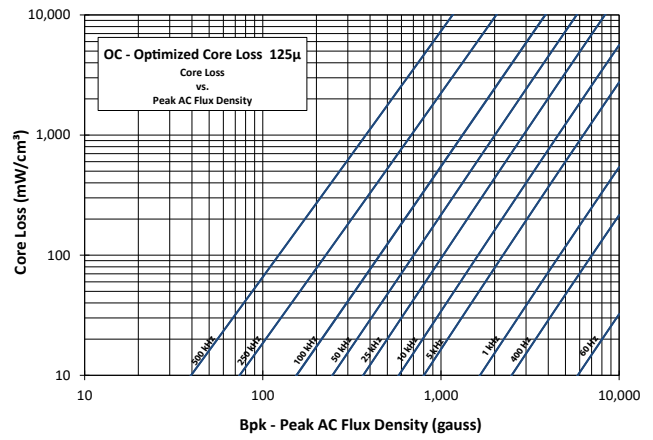
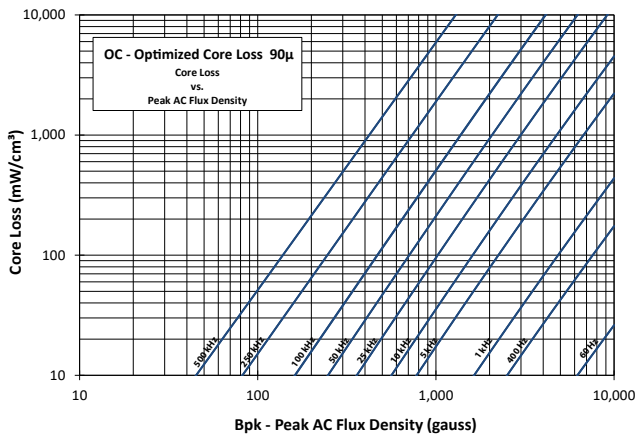
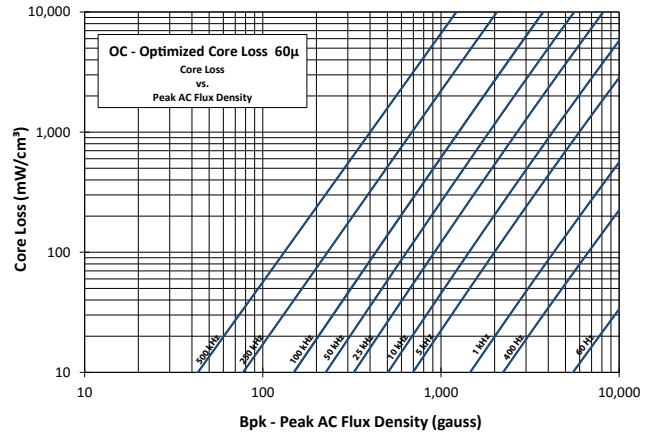
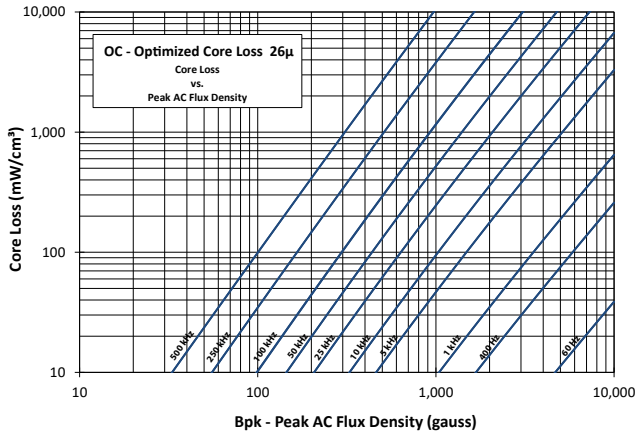




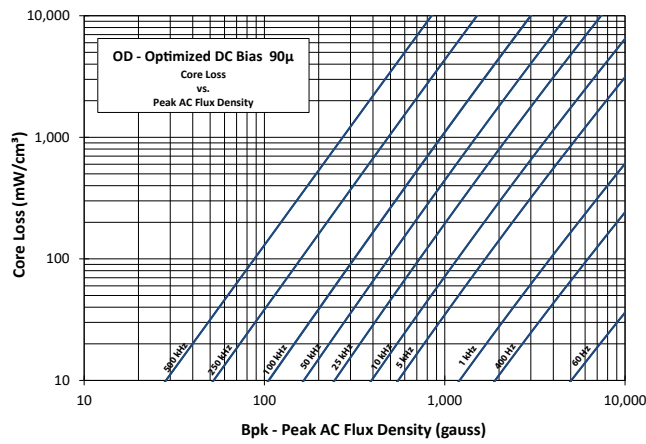
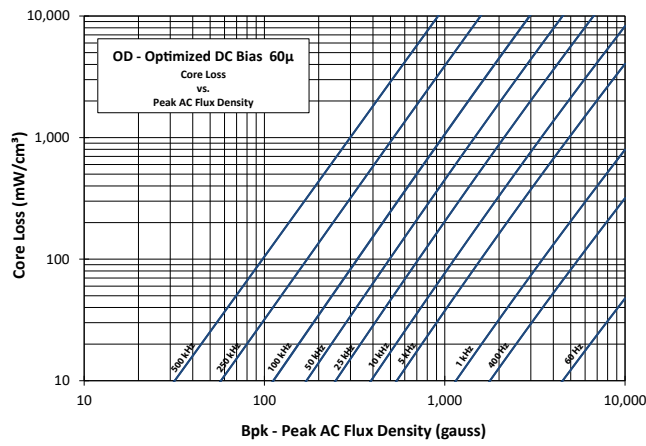
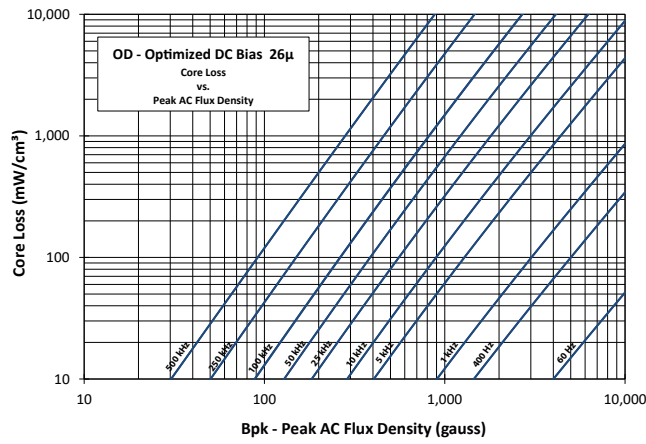


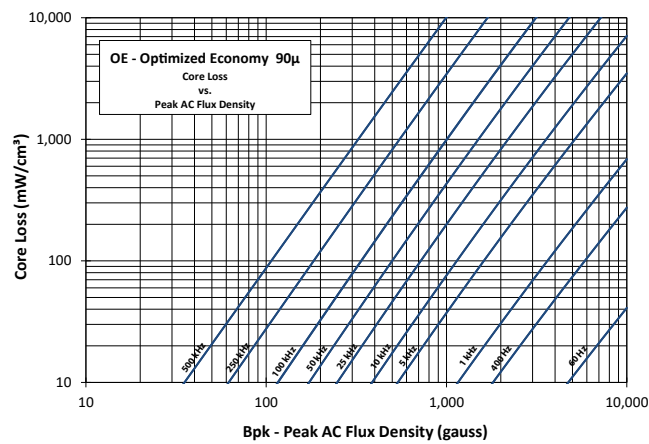
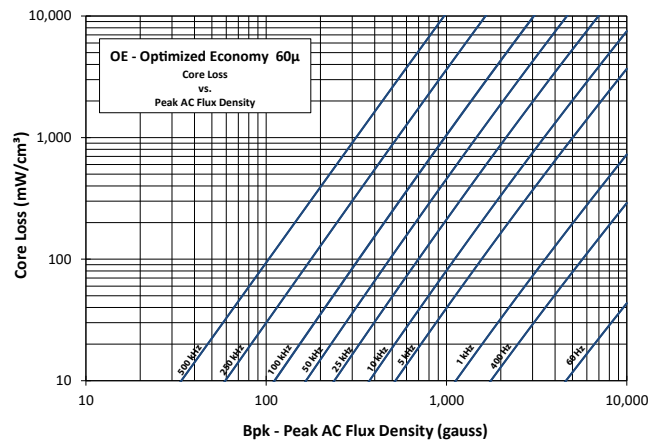
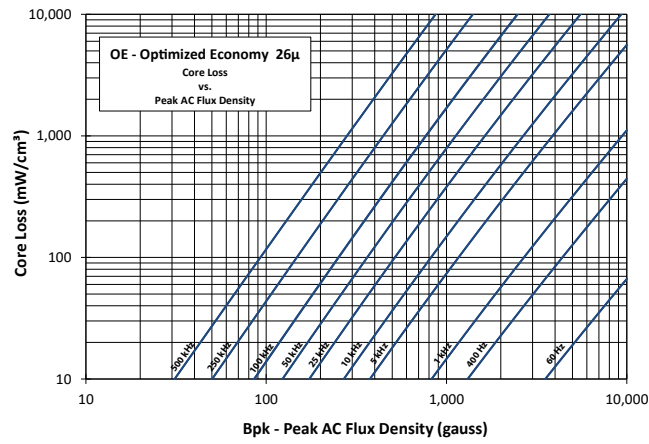


# OC - Optimized Core Loss









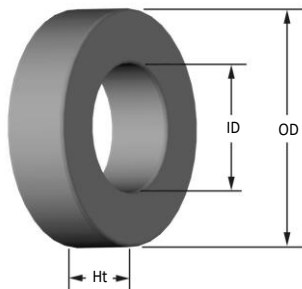
Percent Perm vs. DC Sat. Coef						Core Loss Coefficients			
$\% \mu = \frac{1}{a + bH^c} + d$						$CL(mW/cm^3) = \frac{f}{\frac{a}{B^3} + \frac{b}{B^{2.3}} + \frac{c}{B^{1.65}}} + d \cdot B^2 \cdot f^2$			
Where: H expressed in Oe						Where: B expressed in G, f expressed in Hz			
Material	Permeability	a	b	c	d	a	b	c	d
FS	14	1.00E-02	2.60E-07	1.56E+00	0.00E+00	1.00E+06	6.13E+07	2.05E+06	6.10E-14
FS	26	1.00E-02	9.21E-08	1.91E+00	0.00E+00	1.00E+06	1.81E+08	3.25E+06	6.16E-14
FS	40	1.00E-02	6.31E-08	2.15E+00	0.00E+00	1.00E+06	3.07E+08	3.52E+06	5.63E-14
FS	60	1.00E-02	1.95E-07	2.10E+00	0.00E+00	1.00E+06	3.90E+08	3.79E+06	5.23E-14
FS	75	1.00E-02	3.49E-06	1.68E+00	0.00E+00	1.88E+08	5.10E+08	1.16E+06	5.02E-14
FS	90	1.00E-02	8.57E-06	1.58E+00	0.00E+00	1.00E+06	5.65E+08	7.44E+04	6.94E-14
HF	14	1.00E-02	8.81E-07	1.44E+00	0.00E+00	2.06E+09	3.24E+08	3.00E+06	1.23E-13
HF	26	1.00E-02	2.44E-06	1.44E+00	0.00E+00	2.06E+09	3.24E+08	3.00E+06	1.23E-13
HF	60	1.00E-02	7.65E-07	1.89E+00	0.00E+00	8.58E+09	7.88E+08	1.65E+06	1.02E-13
HF	75	1.00E-02	5.12E-06	1.61E+00	0.00E+00	4.79E+09	6.09E+08	1.49E+06	3.74E-14
HF	125	1.00E-02	7.96E-07	2.17E+00	0.00E+00	3.54E+10	6.83E+08	2.69E+06	6.08E-14
HF	147	1.00E-02	1.25E-06	2.17E+00	0.00E+00	4.30E+10	6.67E+08	3.11E+06	8.00E-14
HF	160	1.00E-02	1.43E-06	2.17E+00	0.00E+00	4.30E+10	6.67E+08	3.11E+06	8.00E-14
MP	14	1.00E-02	5.68E-07	1.66E+00	0.00E+00	1.91E+09	4.35E+08	4.33E+06	8.85E-14
MP	26	1.00E-02	1.96E-06	1.66E+00	0.00E+00	1.91E+09	4.35E+08	4.33E+06	8.85E-14
MP	60	1.00E-02	1.21E-06	1.96E+00	0.00E+00	9.92E+09	9.49E+08	4.49E+06	3.24E-14
MP	125	1.00E-02	7.88E-06	1.87E+00	0.00E+00	2.19E+10	1.31E+09	9.30E+06	3.09E-14
MP	147	1.00E-02	1.09E-05	1.87E+00	0.00E+00	3.17E+10	1.21E+09	9.66E+06	5.64E-14
MP	160	1.00E-02	1.12E-05	1.93E+00	0.00E+00	3.17E+10	1.21E+09	9.66E+06	5.64E-14
MP	173	1.00E-02	1.31E-05	1.93E+00	0.00E+00	3.17E+10	1.21E+09	9.66E+06	5.64E-14
MP	205	1.00E-02	3.82E-06	2.35E+00	0.00E+00	1.14E+10	2.05E+09	1.16E+07	8.98E-14
MS	14	1.00E-02	5.72E-08	2.00E+00	0.00E+00	1.00E+09	4.21E+08	1.03E+07	2.30E-14
MS	26	1.00E-02	2.06E-07	2.00E+00	0.00E+00	1.00E+06	4.97E+08	3.99E+06	2.87E-14
MS	40	1.00E-02	2.65E-06	1.70E+00	0.00E+00	1.00E+06	6.96E+08	5.40E+06	4.13E-14
MS	60	1.00E-02	2.15E-06	1.84E+00	0.00E+00	7.89E+09	7.11E+08	8.98E+06	2.85E-14
MS	75	1.00E-02	3.41E-06	1.84E+00	0.00E+00	7.89E+09	7.11E+08	8.98E+06	2.85E-14
MS	90	1.00E-02	3.99E-06	1.88E+00	0.00E+00	7.89E+09	7.11E+08	8.98E+06	2.85E-14
MS	125	1.00E-02	7.88E-06	1.88E+00	0.00E+00	1.39E+10	1.03E+09	1.24E+07	4.01E-14
MS	147	1.00E-02	4.73E-05	1.54E+00	0.00E+00	5.18E+08	1.03E+09	9.89E+06	2.85E-14
MS	160	1.00E-02	4.44E-05	1.63E+00	0.00E+00	3.68E+10	1.15E+09	1.00E+07	2.85E-14
OC	26	1.00E-02	3.29E-07	1.78E+00	0.00E+00	1.00E+06	4.03E+08	5.15E+06	2.40E-14
OC	60	1.00E-02	8.57E-08	2.33E+00	0.00E+00	2.29E+09	1.50E+09	3.34E+06	1.78E-14
OC	90	1.00E-02	4.56E-07	2.17E+00	0.00E+00	3.40E+09	1.94E+09	4.26E+06	1.69E-14
OC	125	1.00E-02	8.99E-07	2.22E+00	0.00E+00	1.00E+06	2.37E+09	1.45E+06	2.30E-14
OD	26	1.00E-02	1.43E-07	1.82E+00	0.00E+00	1.00E+06	2.79E+08	2.82E+06	2.81E-14
OD	60	1.00E-02	7.60E-09	2.70E+00	0.00E+00	1.00E+06	8.15E+08	2.98E+06	3.29E-14
OD	90	1.00E-02	4.34E-07	2.12E+00	0.00E+00	1.00E+06	7.63E+08	4.69E+06	4.27E-14
OE	26	1.00E-02	3.08E-07	1.75E+00	0.00E+00	1.00E+06	2.87E+08	2.87E+06	2.36E-14
OE	60	1.00E-02	1.08E-07	2.31E+00	0.00E+00	1.00E+06	6.81E+08	3.80E+06	2.70E-14
OE	90	1.00E-02	3.16E-06	1.86E+00	0.00E+00	1.66E+09	7.09E+08	4.04E+06	2.57E-14
SH	26	1.00E-02	1.04E-06	1.70E+00	0.00E+00	1.00E+06	3.29E+08	5.78E+06	1.24E-14
SH	60	1.00E-02	7.72E-06	1.61E+00	0.00E+00	1.00E+06	8.80E+08	5.42E+06	1.03E-14
SH	125	1.00E-02	3.27E-05	1.59E+00	0.00E+00	7.99E+09	1.38E+09	4.04E+06	7.89E-15

Digital version available for download from website ([www.MicrometalsAPC.com](http://www.MicrometalsAPC.com))

Percent Perm vs AC Flux Density Coef	Perm vs Freq Coef
$\% \mu = \left( \frac{a + cB + eB^2}{1 + bB + dB^2} \right)^{1/2}$	$\mu = \frac{1}{a + bf^c} + d$
Where: B expressed in G	Where: f expressed in Hz

Material	Permeability	Percent Perm vs AC Flux Density Coef					Perm vs Freq Coef			
		a	b	c	d	e	a	b	c	d
FS	14	1.00E+04	2.33E-04	3.89E+00	-3.31E-09	-3.84E-04	7.14E-02	1.03E-10	1.08E+00	0.00E+00
FS	26	1.00E+04	3.25E-04	5.41E+00	5.41E-09	-3.74E-04	3.85E-02	1.03E-10	1.08E+00	0.00E+00
FS	40	1.00E+04	3.27E-04	5.65E+00	1.32E-08	-2.91E-04	2.50E-02	1.03E-10	1.08E+00	0.00E+00
FS	60	1.00E+04	3.10E-04	6.07E+00	1.63E-08	-3.66E-04	1.67E-02	1.03E-10	1.08E+00	0.00E+00
FS	75	1.00E+04	3.07E-04	6.12E+00	1.68E-08	-3.76E-04	1.33E-02	1.03E-10	1.08E+00	0.00E+00
FS	90	1.00E+04	3.35E-04	6.61E+00	1.84E-08	-3.55E-04	1.11E-02	1.03E-10	1.08E+00	0.00E+00
HF	14	1.00E+04	3.20E-04	4.32E+00	-1.34E-08	-4.29E-04	7.14E-02	2.64E-09	9.60E-01	0.00E+00
HF	26	1.00E+04	4.49E-04	6.11E+00	-7.22E-10	-4.10E-04	3.85E-02	2.64E-09	9.60E-01	0.00E+00
HF	60	1.00E+04	4.41E-04	6.67E+00	1.56E-08	-3.54E-04	1.67E-02	2.64E-09	9.60E-01	0.00E+00
HF	75	1.00E+04	4.41E-04	6.67E+00	1.56E-08	-3.54E-04	1.33E-02	2.64E-09	9.60E-01	0.00E+00
HF	125	1.00E+04	4.75E-04	7.36E+00	2.07E-08	-3.49E-04	8.00E-03	2.64E-09	9.60E-01	0.00E+00
HF	147	1.00E+04	3.83E-04	6.82E+00	3.07E-08	-2.63E-04	6.80E-03	2.64E-09	9.60E-01	0.00E+00
HF	160	1.00E+04	4.96E-04	8.22E+00	1.07E-08	-4.50E-04	6.25E-03	2.64E-09	9.60E-01	0.00E+00
MP	14	1.00E+04	1.37E-03	1.41E+01	-5.15E-09	-8.17E-04	7.14E-02	5.72E-09	8.92E-01	0.00E+00
MP	26	1.00E+04	1.23E-03	1.32E+01	-9.57E-09	-8.11E-04	3.85E-02	5.72E-09	8.92E-01	0.00E+00
MP	60	1.00E+04	8.54E-04	9.39E+00	-3.55E-09	-5.89E-04	1.67E-02	5.72E-09	8.92E-01	0.00E+00
MP	125	1.00E+04	6.99E-04	7.95E+00	-7.69E-09	-5.40E-04	8.00E-03	5.72E-09	8.92E-01	0.00E+00
MP	147	1.00E+04	6.09E-04	7.12E+00	1.01E-08	-3.60E-04	6.80E-03	5.72E-09	8.92E-01	0.00E+00
MP	160	1.00E+04	6.00E-04	7.11E+00	9.61E-09	-3.76E-04	6.25E-03	5.72E-09	8.92E-01	0.00E+00
MP	173	1.00E+04	5.34E-04	6.49E+00	1.01E-08	-3.45E-04	5.78E-03	5.72E-09	8.92E-01	0.00E+00
MP	205	1.00E+04	9.16E-04	1.08E+01	2.36E-09	-6.11E-04	4.88E-03	5.72E-09	8.92E-01	0.00E+00
MS	14	1.00E+04	1.37E-03	1.41E+01	-5.15E-09	-8.17E-04	7.14E-02	3.02E-11	1.17E+00	0.00E+00
MS	26	1.00E+04	3.26E-04	3.65E+00	1.22E-08	-1.93E-04	3.85E-02	3.02E-11	1.17E+00	0.00E+00
MS	40	1.00E+04	9.59E-04	1.05E+01	-8.41E-09	-6.95E-04	2.50E-02	3.02E-11	1.17E+00	0.00E+00
MS	60	1.00E+04	7.85E-04	9.14E+00	9.69E-09	-7.37E-04	1.67E-02	3.02E-11	1.17E+00	0.00E+00
MS	75	1.00E+04	7.79E-04	9.46E+00	1.52E-09	-9.35E-04	1.33E-02	3.02E-11	1.17E+00	0.00E+00
MS	90	1.00E+04	7.06E-04	9.17E+00	1.23E-08	-1.00E-03	1.11E-02	3.02E-11	1.17E+00	0.00E+00
MS	125	1.00E+04	6.01E-04	8.26E+00	1.84E-08	-9.01E-04	8.00E-03	3.02E-11	1.17E+00	0.00E+00
MS	147	1.00E+04	6.01E-04	8.26E+00	1.84E-08	-9.01E-04	6.80E-03	3.02E-11	1.17E+00	0.00E+00
MS	160	1.00E+04	6.01E-04	8.26E+00	1.84E-08	-9.01E-04	6.25E-03	3.02E-11	1.17E+00	0.00E+00
OC	26	4.49E-04	6.11E+00	-7.22E-10	-4.10E-04	3.85E-02	6.06E-10	1.01E+00	0.00E+00	1.00E+04
OC	60	4.41E-04	6.67E+00	1.56E-08	-3.54E-04	1.67E-02	6.06E-10	1.01E+00	0.00E+00	1.00E+04
OC	90	4.75E-04	7.36E+00	2.07E-08	-3.49E-04	1.11E-02	6.06E-10	1.01E+00	0.00E+00	1.00E+04
OC	125	4.75E-04	7.36E+00	2.07E-08	-3.49E-04	8.00E-03	6.06E-10	1.01E+00	0.00E+00	1.00E+04
OD	26	4.49E-04	6.11E+00	-7.22E-10	-4.10E-04	3.85E-02	6.06E-10	1.01E+00	0.00E+00	1.00E+04
OD	60	4.41E-04	6.67E+00	1.56E-08	-3.54E-04	1.67E-02	6.06E-10	1.01E+00	0.00E+00	1.00E+04
OD	90	4.75E-04	7.36E+00	2.07E-08	-3.49E-04	1.11E-02	6.06E-10	1.01E+00	0.00E+00	1.00E+04
OE	26	4.49E-04	6.11E+00	-7.22E-10	-4.10E-04	3.85E-02	6.06E-10	1.01E+00	0.00E+00	1.00E+04
OE	60	4.41E-04	6.67E+00	1.56E-08	-3.54E-04	1.67E-02	6.06E-10	1.01E+00	0.00E+00	1.00E+04
OE	90	4.75E-04	7.36E+00	2.07E-08	-3.49E-04	1.11E-02	6.06E-10	1.01E+00	0.00E+00	1.00E+04
SH	26	1.00E+04	3.26E-04	3.65E+00	1.22E-08	-1.93E-04	3.85E-02	1.01E-11	1.17E+00	0.00E+00
SH	60	1.00E+04	7.85E-04	9.14E+00	9.69E-09	-7.37E-04	1.67E-02	1.01E-11	1.17E+00	0.00E+00
SH	125	1.00E+04	6.01E-04	8.26E+00	1.84E-08	-9.01E-04	8.00E-03	1.01E-11	1.17E+00	0.00E+00

Digital version available for download from website ([www.MicrometalsAPC.com](http://www.MicrometalsAPC.com))



**Typical Part Number: MS - 014 125 - 8**

Material Type → MS  
 OD in 100th inches → 014  
 Reference Permeability → 125  
 Finish → 8  
 Area for Special Height (in XX.Xmm) → 8

**Physical Dimensions**

OD	Bare Core Nominal	3.56 mm	0.140 in
	Coated Core (max)	3.76 mm	0.148 in
ID	Bare Core Nominal	1.78 mm	0.070 in
	Coated Core (min)	1.52 mm	0.060 in
Ht	Bare Core Nominal	1.52 mm	0.060 in
	Coated Core (max)	1.73 mm	0.068 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.0137 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	0.817 cm
<b>Ve</b>	Effective Core Volume	0.0107 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	0.0181 cm <sup>2</sup>
<b>SA</b>	Surface Area	0.523 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	0.646 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	3	MS-014014-8		MP-014014-8	HF-014014-8	FS-014014-8			
26μ	5.5	MS-014026-8	SH-014026-8	MP-014026-8	HF-014026-8	FS-014026-8	OC-014026-8	OD-014026-8	OE-014026-8
40μ	9	MS-014040-8				FS-014040-8			
60μ	13	MS-014060-8	SH-014060-8	MP-014060-8	HF-014060-8	FS-014060-8	OC-014060-8	OD-014060-8	OE-014060-8
75μ	16	MS-014075-8				FS-014075-8			
90μ	19	MS-014090-8				FS-014090-8	OC-014090-8	OD-014090-8	OE-014090-8
125μ	26	MS-014125-8	SH-014125-8	MP-014125-8	HF-014125-8		OC-014125-8		
147μ	31	MS-014147-8		MP-014147-8	HF-014147-8				
160μ	33	MS-014160-8		MP-014160-8	HF-014160-8				
173μ	36			MP-014173-8					
205μ	43			MP-014205-8					
<b>Approx. Unit Weight:</b>		0.06 g	0.06 g	0.08 g	0.07 g	0.07 g	0.07 g	0.07 g	0.07 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=30, #36 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.002 V
<b>A<sub>L</sub> Tolerance</b>	±8% (±15% MS-Sendust)

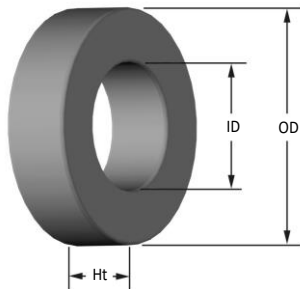
**Coating/Packaging Information**

<b>Coating Type</b>	Parylene N
<b>Voltage Breakdown</b>	500 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	36,000 Pcs/Box

**Winding Table**

Wire Size	AWG	30	32	34	36	38	40	42	44	-	-	-
	mm	0.250	0.200	0.160	0.125	0.100	0.080	0.063	0.050	-	-	-
<b>Single Layer</b>	Turns	11	15	19	25	31	40	50	63	-	-	-
	Rdc(Ω)	24.1 m	52.2 m	105.1 m	219.9 m	433.7 m	890.0 m	1.8	3.5	-	-	-
<b>Full Winding</b>	Turns	12	18	28	43	67	103	159	247	-	-	-
	Rdc(Ω)	26.2 m	62.6 m	154.9 m	378.3 m	937.3 m	2.3	5.6	13.9	-	-	-

# 0.155 in./3.94 mm OD Toroid



**Typical Part Number: MS - 015 125 - 8**

Material Type → MS  
 OD in 100th inches → 015  
 Reference Permeability → 125  
 Finish → -  
 Area for Special Height (in XX.Xmm) → 8

## Physical Dimensions

OD	Bare Core Nominal	3.94 mm	0.155 in
	Coated Core (max)	4.14 mm	0.163 in
ID	Bare Core Nominal	2.21 mm	0.087 in
	Coated Core (min)	2.01 mm	0.079 in
Ht	Bare Core Nominal	2.54 mm	0.100 in
	Coated Core (max)	2.74 mm	0.108 in

## Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	0.0211 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	0.942 cm
<b>Ve</b>	Effective Core Volume	0.0197 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	0.0317 cm <sup>2</sup>
<b>SA</b>	Surface Area	0.776 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	0.862 cm

## Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	4	MS-015014-8		MP-015014-8	HF-015014-8	FS-015014-8			
26μ	7	MS-015026-8	SH-015026-8	MP-015026-8	HF-015026-8	FS-015026-8	OC-015026-8	OD-015026-8	OE-015026-8
40μ	11	MS-015040-8				FS-015040-8			
60μ	17	MS-015060-8	SH-015060-8	MP-015060-8	HF-015060-8	FS-015060-8	OC-015060-8	OD-015060-8	OE-015060-8
75μ	21	MS-015075-8				FS-015075-8			
90μ	25	MS-015090-8				FS-015090-8	OC-015090-8	OD-015090-8	OE-015090-8
125μ	35	MS-015125-8	SH-015125-8	MP-015125-8	HF-015125-8		OC-015125-8		
147μ	41	MS-015147-8		MP-015147-8	HF-015147-8				
160μ	45	MS-015160-8		MP-015160-8	HF-015160-8				
173μ	48			MP-015173-8					
205μ	57			MP-015205-8					
<b>Approx. Unit Weight:</b>		0.11 g	0.11 g	0.15 g	0.14 g	0.13 g	0.13 g	0.13 g	0.13 g

\*OP Material is available, further details listed on website

## Test Conditions

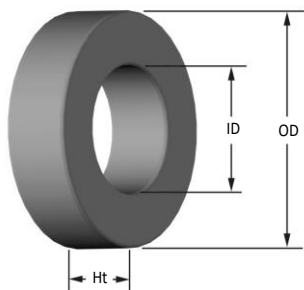
<b>Winding</b>	N=30, #32 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.003 V
<b>A<sub>L</sub> Tolerance</b>	±8% (±15% MS-Sendust)

## Coating/Packaging Information

<b>Coating Type</b>	Parylene N
<b>Voltage Breakdown</b>	500 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	27,000 Pcs/Box

## Winding Table

Wire Size	AWG	28	30	32	34	36	38	40	42	44	-	-
	mm	0.315	0.250	0.200	0.160	0.125	0.100	0.080	0.063	0.050	-	-
<b>Single Layer</b>	Turns	12	16	21	26	33	42	53	67	84	-	-
	Rdc(Ω)	22.0 m	46.7 m	97.4 m	191.8 m	387.1 m	783.6 m	1.6	3.2	6.3	-	-
<b>Full Winding</b>	Turns	13	20	31	49	75	116	180	279	431	-	-
	Rdc(Ω)	23.8 m	58.3 m	143.8 m	361.4 m	879.8 m	2.2	5.3	13.2	32.3	-	-



**Typical Part Number: MS - 018 125 - 8**

Material Type → MS  
 OD in 100th inches → 018  
 Reference Permeability → 125  
 Finish → 8  
 Area for Special Height (in XX.Xmm) →

**Physical Dimensions**

OD	Bare Core Nominal	4.65 mm	0.183 in
	Coated Core (max)	5.21 mm	0.205 in
ID	Bare Core Nominal	2.36 mm	0.093 in
	Coated Core (min)	1.93 mm	0.076 in
Ht	Bare Core Nominal	2.54 mm	0.100 in
	Coated Core (max)	3.3 mm	0.130 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.0285 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	1.06 cm
<b>Ve</b>	Effective Core Volume	0.0302 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	0.0293 cm <sup>2</sup>
<b>SA</b>	Surface Area	1.15 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	1.08 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	5	MS-018014-8		MP-018014-8	HF-018014-8	FS-018014-8			
26μ	9	MS-018026-8	SH-018026-8	MP-018026-8	HF-018026-8	FS-018026-8	OC-018026-8	OD-018026-8	OE-018026-8
40μ	13	MS-018040-8				FS-018040-8			
60μ	20	MS-018060-8	SH-018060-8	MP-018060-8	HF-018060-8	FS-018060-8	OC-018060-8	OD-018060-8	OE-018060-8
75μ	25	MS-018075-8				FS-018075-8			
90μ	30	MS-018090-8				FS-018090-8	OC-018090-8	OD-018090-8	OE-018090-8
125μ	42	MS-018125-8	SH-018125-8	MP-018125-8	HF-018125-8		OC-018125-8		
147μ	49	MS-018147-8		MP-018147-8	HF-018147-8				
160μ	53	MS-018160-8		MP-018160-8	HF-018160-8				
173μ	57			MP-018173-8					
205μ	68			MP-018205-8					
<b>Approx. Unit Weight:</b>		0.17 g	0.17 g	0.22 g	0.21 g	0.21 g	0.20 g	0.20 g	0.20 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=30, #32 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.004 V
<b>A<sub>L</sub> Tolerance</b>	±8% (±15% MS-Sendust)

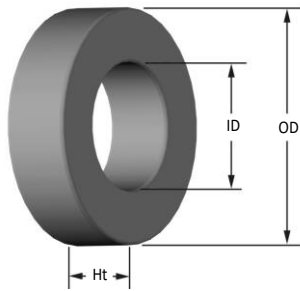
**Coating/Packaging Information**

<b>Coating Type</b>	Parylene N
<b>Voltage Breakdown</b>	500 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	27,000 Pcs/Box

**Winding Table**

Wire Size	AWG	28	30	32	34	36	38	40	42	44	-	-
	mm	0.315	0.250	0.200	0.160	0.125	0.100	0.080	0.063	0.050	-	-
<b>Single Layer</b>	Turns	12	15	20	25	32	40	51	64	81	-	-
	Rdc(Ω)	27.7 m	55.1 m	116.8 m	232.1 m	472.6 m	939.5 m	1.9	3.8	7.7	-	-
<b>Full Winding</b>	Turns	12	19	29	45	69	107	166	257	398	-	-
	Rdc(Ω)	27.7 m	69.8 m	169.3 m	417.9 m	1.0	2.5	6.2	15.3	37.6	-	-

# 0.250 in./6.35 mm OD Toroid



**Typical Part Number:** **MS - 025 125 - 8**

Material Type → MS  
 OD in 100th inches → 025  
 Reference Permeability → 125  
 Finish → 8  
 Area for Special Height (in XX.Xmm) → 8

## Physical Dimensions

OD	Bare Core Nominal	6.35 mm	0.250 in
	Coated Core (max)	6.99 mm	0.275 in
ID	Bare Core Nominal	2.79 mm	0.110 in
	Coated Core (min)	2.29 mm	0.090 in
Ht	Bare Core Nominal	2.79 mm	0.110 in
	Coated Core (max)	3.43 mm	0.135 in

## Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	0.0476 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	1.36 cm
<b>Ve</b>	Effective Core Volume	0.0642 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	0.0412 cm <sup>2</sup>
<b>SA</b>	Surface Area	1.80 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	1.27 cm

## Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	6	MS-025014-8		MP-025014-8	HF-025014-8	FS-025014-8			
26μ	10	MS-025026-8	SH-025026-8	MP-025026-8	HF-025026-8	FS-025026-8	OC-025026-8	OD-025026-8	OE-025026-8
40μ	16	MS-025040-8				FS-025040-8			
60μ	24	MS-025060-8	SH-025060-8	MP-025060-8	HF-025060-8	FS-025060-8	OC-025060-8	OD-025060-8	OE-025060-8
75μ	30	MS-025075-8				FS-025075-8			
90μ	36	MS-025090-8				FS-025090-8	OC-025090-8	OD-025090-8	OE-025090-8
125μ	52	MS-025125-8	SH-025125-8	MP-025125-8	HF-025125-8		OC-025125-8		
147μ	58	MS-025147-8		MP-025147-8	HF-025147-8				
160μ	64	MS-025160-8		MP-025160-8	HF-025160-8				
173μ	69			MP-025173-8					
205μ	82			MP-025205-8					
<b>Approx. Unit Weight:</b>		0.37 g	0.36 g	0.48 g	0.44 g	0.44 g	0.43 g	0.43 g	0.43 g

\*OP Material is available, further details listed on website

## Test Conditions

<b>Winding</b>	N=30, #32 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.006 V
<b>A<sub>L</sub> Tolerance</b>	±8% (±12% MS-Sendust)

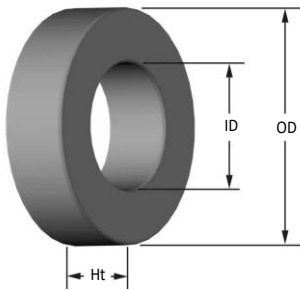
## Coating/Packaging Information

<b>Coating Type</b>	Parylene N
<b>Voltage Breakdown</b>	500 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	21,600 Pcs/Box

## Winding Table

Wire Size	AWG	26	28	30	32	34	36	38	40	42	44	-
	mm	0.400	0.315	0.250	0.200	0.160	0.125	0.100	0.080	0.063	0.050	-
<b>Single Layer</b>	Turns	11	14	19	24	30	38	49	61	77	96	-
	Rdc(Ω)	18.7 m	37.9 m	81.7 m	164.2 m	326.3 m	657.4 m	1.3	2.7	5.4	10.6	-
<b>Full Winding</b>	Turns	11	17	26	41	63	98	151	234	362	560	-
	Rdc(Ω)	18.7 m	46.0 m	111.8 m	280.4 m	685.3 m	1.7	4.2	10.2	25.2	62.0	-





<b>Typical Part Number:</b>	<b>MS - 026 125 - 8</b>
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Material Type \_\_\_\_\_  
 OD in 100th inches \_\_\_\_\_  
 Reference Permeability \_\_\_\_\_  
 Finish \_\_\_\_\_  
 Area for Special Height (in XX.Xmm) \_\_\_\_\_

**Physical Dimensions**

OD	Bare Core Nominal	6.6 mm	0.260 in
	Coated Core (max)	7.32 mm	0.288 in
ID	Bare Core Nominal	2.67 mm	0.105 in
	Coated Core (min)	2.21 mm	0.087 in
Ht	Bare Core Nominal	4.78 mm	0.188 in
	Coated Core (max)	5.54 mm	0.218 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.0920 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	1.36 cm
<b>Ve</b>	Effective Core Volume	0.125 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	0.0384 cm <sup>2</sup>
<b>SA</b>	Surface Area	2.44 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	1.73 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	12	MS-026014-8		MP-026014-8	HF-026014-8	FS-026014-8			
26μ	21	MS-026026-8	SH-026026-8	MP-026026-8	HF-026026-8	FS-026026-8	OC-026026-8	OD-026026-8	OE-026026-8
40μ	33	MS-026040-8				FS-026040-8			
60μ	50	MS-026060-8	SH-026060-8	MP-026060-8	HF-026060-8	FS-026060-8	OC-026060-8	OD-026060-8	OE-026060-8
75μ	62	MS-026075-8				FS-026075-8			
90μ	74	MS-026090-8				FS-026090-8	OC-026090-8	OD-026090-8	OE-026090-8
125μ	103	MS-026125-8	SH-026125-8	MP-026125-8	HF-026125-8		OC-026125-8		
147μ	122	MS-026147-8		MP-026147-8	HF-026147-8				
160μ	132	MS-026160-8		MP-026160-8	HF-026160-8				
173μ	144			MP-026173-8					
205μ	170			MP-026205-8					
<b>Approx. Unit Weight:</b>		0.72 g	0.70 g	0.93 g	0.86 g	0.85 g	0.83 g	0.83 g	0.83 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=35, #32 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.014 V
<b>A<sub>L</sub> Tolerance</b>	±8% (±12% MS-Sendust)

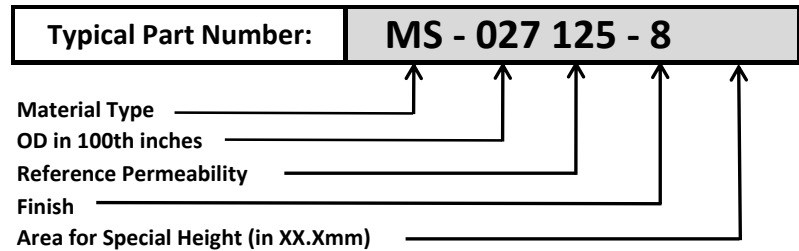
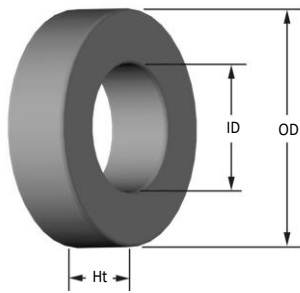
**Coating/Packaging Information**

<b>Coating Type</b>	Parylene N
<b>Voltage Breakdown</b>	500 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	14,400 Pcs/Box

**Winding Table**

Wire Size	AWG	26	28	30	32	34	36	38	40	42	44	-
	mm	0.400	0.315	0.250	0.200	0.160	0.125	0.100	0.080	0.063	0.050	-
<b>Single Layer</b>	Turns	11	14	18	23	29	37	47	59	74	93	-
	Rdc(Ω)	25.5 m	51.5 m	105.4 m	214.2 m	429.4 m	871.4 m	1.8	3.5	7.0	14.0	-
<b>Full Winding</b>	Turns	10	16	25	38	59	91	141	218	337	522	-
	Rdc(Ω)	23.1 m	58.9 m	146.4 m	353.8 m	873.7 m	2.1	5.3	13.0	31.9	78.6	-

# 0.260 in./6.60 mm OD Toroid



### Physical Dimensions

OD	Bare Core Nominal	6.6 mm	0.260 in
	Coated Core (max)	7.24 mm	0.285 in
ID	Bare Core Nominal	2.67 mm	0.105 in
	Coated Core (min)	2.29 mm	0.090 in
Ht	Bare Core Nominal	2.54 mm	0.100 in
	Coated Core (max)	3.18 mm	0.125 in

### Magnetic Dimensions

Ae	Effective Magnetic Cross Section	0.0467 cm <sup>2</sup>
Le	Effective Magnetic Path Length	1.36 cm
Ve	Effective Core Volume	0.0640 cm <sup>3</sup>
WA	Minimum Effective Window Area	0.0412 cm <sup>2</sup>
SA	Surface Area	1.83 cm <sup>2</sup>
MLT	Mean Length Per Turn	1.25 cm

### Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	6.05	MS-027014-8		MP-027014-8	HF-027014-8	FS-027014-8			
26μ	11	MS-027026-8	SH-027026-8	MP-027026-8	HF-027026-8	FS-027026-8	OC-027026-8	OD-027026-8	OE-027026-8
40μ	17	MS-027040-8				FS-027040-8			
60μ	26	MS-027060-8	SH-027060-8	MP-027060-8	HF-027060-8	FS-027060-8	OC-027060-8	OD-027060-8	OE-027060-8
75μ	32	MS-027075-8				FS-027075-8			
90μ	39	MS-027090-8				FS-027090-8	OC-027090-8	OD-027090-8	OE-027090-8
125μ	54	MS-027125-8	SH-027125-8	MP-027125-8	HF-027125-8		OC-027125-8		
147μ	64	MS-027147-8		MP-027147-8	HF-027147-8				
160μ	69	MS-027160-8		MP-027160-8	HF-027160-8				
173μ	75			MP-027173-8					
205μ	89			MP-027205-8					
Approx. Unit Weight:		0.37 g	0.36 g	0.48 g	0.44 g	0.44 g	0.42 g	0.42 g	0.42 g

\*OP Material is available, further details listed on website

### Test Conditions

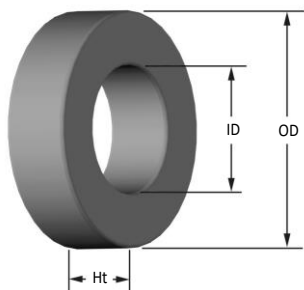
Winding	N=35, #32 AWG
Frequency	10 kHz
Voltage	0.007 V
A <sub>L</sub> Tolerance	±8% (±12% MS-Sendust)

### Coating/Packaging Information

Coating Type	Parylene N
Voltage Breakdown	500 Vrms
Limit	0.1 mA, 5 s
Package Quantity	21,600 Pcs/Box

### Winding Table

Wire Size	AWG	26	28	30	32	34	36	38	40	42	44	-
	mm	0.400	0.315	0.250	0.200	0.160	0.125	0.100	0.080	0.063	0.050	-
Single Layer	Turns	11	14	19	24	30	38	49	61	77	96	-
	Rdc(Ω)	18.3 m	37.1 m	80.1 m	160.9 m	319.9 m	644.5 m	1.3	2.6	5.3	10.4	-
Full Winding	Turns	11	17	26	41	63	98	151	234	362	560	-
	Rdc(Ω)	18.3 m	45.1 m	109.6 m	274.9 m	671.8 m	1.7	4.1	10.0	24.7	60.8	-



<b>Typical Part Number:</b>	<b>MS - 028 125 - 8</b>
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Material Type → MS  
 OD in 100th inches → 028  
 Reference Permeability → 125  
 Finish → 8  
 Area for Special Height (in XX.Xmm) → (none)

**Physical Dimensions**

OD	Bare Core Nominal	7.04 mm	0.277 in
	Coated Core (max)	7.67 mm	0.302 in
ID	Bare Core Nominal	3.96 mm	0.156 in
	Coated Core (min)	3.45 mm	0.136 in
Ht	Bare Core Nominal	5.08 mm	0.200 in
	Coated Core (max)	5.72 mm	0.225 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.0750 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	1.68 cm
<b>Ve</b>	Effective Core Volume	0.126 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	0.0935 cm <sup>2</sup>
<b>SA</b>	Surface Area	2.80 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	1.74 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	8	MS-028014-8		MP-028014-8	HF-028014-8	FS-028014-8			
26μ	14	MS-028026-8	SH-028026-8	MP-028026-8	HF-028026-8	FS-028026-8	OC-028026-8	OD-028026-8	OE-028026-8
40μ	22	MS-028040-8				FS-028040-8			
60μ	33	MS-028060-8	SH-028060-8	MP-028060-8	HF-028060-8	FS-028060-8	OC-028060-8	OD-028060-8	OE-028060-8
75μ	42	MS-028075-8				FS-028075-8			
90μ	50	MS-028090-8				FS-028090-8	OC-028090-8	OD-028090-8	OE-028090-8
125μ	70	MS-028125-8	SH-028125-8	MP-028125-8	HF-028125-8		OC-028125-8		
147μ	81	MS-028147-8		MP-028147-8	HF-028147-8				
160μ	89	MS-028160-8		MP-028160-8	HF-028160-8				
173μ	95			MP-028173-8					
205μ	113			MP-028205-8					
<b>Approx. Unit Weight:</b>		0.73 g	0.70 g	0.94 g	0.87 g	0.86 g	0.84 g	0.84 g	0.84 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=40, #32 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.013 V
<b>A<sub>L</sub> Tolerance</b>	±8% (±12% MS-Sendust)

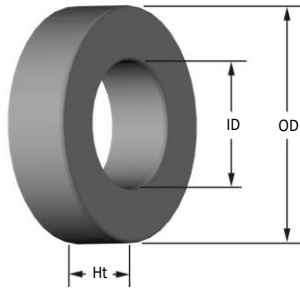
**Coating/Packaging Information**

<b>Coating Type</b>	Parylene N
<b>Voltage Breakdown</b>	500 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	12,600 Pcs/Box

**Winding Table**

Wire Size	AWG	22	24	26	28	30	32	34	36	38	40	42
	mm	0.630	0.500	0.400	0.315	0.250	0.200	0.160	0.125	0.100	0.080	0.063
<b>Single Layer</b>	Turns	11	14	18	23	29	37	47	59	75	93	117
	Rdc(Ω)	10.1 m	20.5 m	41.9 m	85.1 m	170.7 m	346.3 m	699.6 m	1.4	2.8	5.6	11.1
<b>Full Winding</b>	Turns	10	16	25	39	60	92	143	222	343	531	821
	Rdc(Ω)	9.2 m	23.4 m	58.2 m	144.3 m	353.1 m	861.1 m	2.1	5.3	12.9	31.8	78.2

# 0.310 in./7.87 mm OD Toroid



**Typical Part Number:** **MS - 031 125 - 8**

Material Type \_\_\_\_\_  
 OD in 100th inches \_\_\_\_\_  
 Reference Permeability \_\_\_\_\_  
 Finish \_\_\_\_\_  
 Area for Special Height (in XX.Xmm) \_\_\_\_\_

## Physical Dimensions

OD	Bare Core Nominal	7.87 mm	0.310 in
	Coated Core (max)	8.51 mm	0.335 in
ID	Bare Core Nominal	3.96 mm	0.156 in
	Coated Core (min)	3.43 mm	0.135 in
Ht	Bare Core Nominal	3.18 mm	0.125 in
	Coated Core (max)	3.81 mm	0.150 in

## Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	0.0615 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	1.79 cm
<b>Ve</b>	Effective Core Volume	0.110 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	0.0924 cm <sup>2</sup>
<b>SA</b>	Surface Area	2.65 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	1.44 cm

## Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	6	MS-031014-8		MP-031014-8	HF-031014-8	FS-031014-8			
26μ	14	MS-031026-8	SH-031026-8	MP-031026-8	HF-031026-8	FS-031026-8	OC-031026-8	OD-031026-8	OE-031026-8
40μ	17	MS-031040-8				FS-031040-8			
60μ	25	MS-031060-8	SH-031060-8	MP-031060-8	HF-031060-8	FS-031060-8	OC-031060-8	OD-031060-8	OE-031060-8
75μ	31	MS-031075-8				FS-031075-8			
90μ	37	MS-031090-8				FS-031090-8	OC-031090-8	OD-031090-8	OE-031090-8
125μ	52	MS-031125-8	SH-031125-8	MP-031125-8	HF-031125-8		OC-031125-8		
147μ	62	MS-031147-8		MP-031147-8	HF-031147-8				
160μ	66	MS-031160-8		MP-031160-8	HF-031160-8				
173μ	73			MP-031173-8					
205μ	86			MP-031205-8					
<b>Approx. Unit Weight:</b>		0.64 g	0.61 g	0.82 g	0.76 g	0.75 g	0.73 g	0.73 g	0.73 g

\*OP Material is available, further details listed on website

## Test Conditions

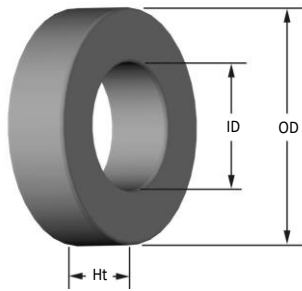
<b>Winding</b>	N=45, #32 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.012 V
<b>A<sub>L</sub> Tolerance</b>	±8% (±12% MS-Sendust)

## Coating/Packaging Information

<b>Coating Type</b>	Parylene N
<b>Voltage Breakdown</b>	500 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	14,400 Pcs/Box

## Winding Table

Wire Size	AWG	22	24	26	28	30	32	34	36	38	40	42
	mm	0.630	0.500	0.400	0.315	0.250	0.200	0.160	0.125	0.100	0.080	0.063
<b>Single Layer</b>	Turns	11	14	18	23	29	37	47	59	74	93	116
	Rdc(Ω)	8.4 m	17.0 m	34.7 m	70.6 m	141.5 m	287.1 m	580.1 m	1.2	2.3	4.6	9.2
<b>Full Winding</b>	Turns	10	16	25	38	59	91	141	219	339	524	812
	Rdc(Ω)	7.6 m	19.4 m	48.2 m	116.6 m	287.9 m	706.2 m	1.7	4.3	10.6	26.0	64.1



**Typical Part Number: MS - 038 125 - 8**

Material Type → MS  
 OD in 100th inches → 038  
 Reference Permeability → 125  
 Finish → -8  
 Area for Special Height (in XX.Xmm) →

**Physical Dimensions**

OD	Bare Core Nominal	9.65 mm	0.380 in
	Coated Core (max)	10.29 mm	0.405 in
ID	Bare Core Nominal	4.78 mm	0.188 in
	Coated Core (min)	4.27 mm	0.168 in
Ht	Bare Core Nominal	3.96 mm	0.156 in
	Coated Core (max)	4.57 mm	0.180 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.0945 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	2.18 cm
<b>Ve</b>	Effective Core Volume	0.206 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	0.143 cm <sup>2</sup>
<b>SA</b>	Surface Area	3.88 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	1.73 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	7	MS-038014-8		MP-038014-8	HF-038014-8	FS-038014-8			
26μ	14	MS-038026-8	SH-038026-8	MP-038026-8	HF-038026-8	FS-038026-8	OC-038026-8	OD-038026-8	OE-038026-8
40μ	21	MS-038040-8				FS-038040-8			
60μ	32	MS-038060-8	SH-038060-8	MP-038060-8	HF-038060-8	FS-038060-8	OC-038060-8	OD-038060-8	OE-038060-8
75μ	40	MS-038075-8				FS-038075-8			
90μ	48	MS-038090-8				FS-038090-8	OC-038090-8	OD-038090-8	OE-038090-8
125μ	66	MS-038125-8	SH-038125-8	MP-038125-8	HF-038125-8		OC-038125-8		
147μ	78	MS-038147-8		MP-038147-8	HF-038147-8				
160μ	84	MS-038160-8		MP-038160-8	HF-038160-8				
173μ	92			MP-038173-8					
205μ	109			MP-038205-8					
<b>Approx. Unit Weight:</b>		1.2 g	1.2 g	1.5 g	1.4 g	1.4 g	1.4 g	1.4 g	1.4 g

\*OP Material is available, further details listed on website

**Test Conditions**

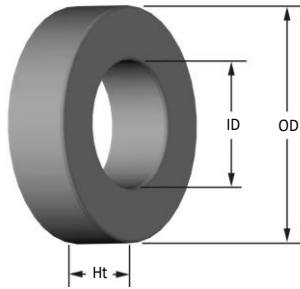
<b>Winding</b>	N=45, #30 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.019 V
<b>A<sub>L</sub> Tolerance</b>	±8% (±12% MS-Sendust)

**Coating/Packaging Information**

<b>Coating Type</b>	Parylene N
<b>Voltage Breakdown</b>	500 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	10,800 Pcs/Box

**Winding Table**

Wire Size	AWG	20	22	24	26	28	30	32	34	36	38	40
	mm	0.800	0.630	0.500	0.400	0.315	0.250	0.200	0.160	0.125	0.100	0.080
<b>Single Layer</b>	Turns	11	14	18	23	29	37	47	59	74	93	116
	Rdc(Ω)	6.3 m	12.8 m	26.2 m	53.2 m	106.8 m	216.6 m	437.6 m	873.7 m	1.7	3.5	6.9
<b>Full Winding</b>	Turns	10	16	25	38	59	92	142	219	339	525	813
	Rdc(Ω)	5.8 m	14.6 m	36.4 m	88.0 m	217.2 m	538.6 m	1.3	3.2	8.0	19.7	48.4



**Typical Part Number: MS - 039 125 - 8**

Material Type → MS  
 OD in 100th inches → 039  
 Reference Permeability → 125  
 Finish → 8  
 Area for Special Height (in XX.Xmm) → 039

**Physical Dimensions**

OD	Bare Core Nominal	9.65 mm	0.380 in
	Coated Core (max)	10.29 mm	0.405 in
ID	Bare Core Nominal	4.78 mm	0.188 in
	Coated Core (min)	4.27 mm	0.168 in
Ht	Bare Core Nominal	3.18 mm	0.125 in
	Coated Core (max)	3.81 mm	0.150 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.0752 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	2.18 cm
<b>Ve</b>	Effective Core Volume	0.164 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	0.143 cm <sup>2</sup>
<b>SA</b>	Surface Area	3.61 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	1.58 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	6	MS-039014-8		MP-039014-8	HF-039014-8	FS-039014-8			
26μ	11	MS-039026-8	SH-039026-8	MP-039026-8	HF-039026-8	FS-039026-8	OC-039026-8	OD-039026-8	OE-039026-8
40μ	17	MS-039040-8				FS-039040-8			
60μ	25	MS-039060-8	SH-039060-8	MP-039060-8	HF-039060-8	FS-039060-8	OC-039060-8	OD-039060-8	OE-039060-8
75μ	32	MS-039075-8				FS-039075-8			
90μ	38	MS-039090-8				FS-039090-8	OC-039090-8	OD-039090-8	OE-039090-8
125μ	53	MS-039125-8	SH-039125-8	MP-039125-8	HF-039125-8		OC-039125-8		
147μ	63	MS-039147-8		MP-039147-8	HF-039147-8				
160μ	68	MS-039160-8		MP-039160-8	HF-039160-8				
173μ	74			MP-039173-8					
205μ	84			MP-039205-8					
<b>Approx. Unit Weight:</b>		0.95 g	0.92 g	1.2 g	1.1 g	1.1 g	1.1 g	1.1 g	1.1 g

\*OP Material is available, further details listed on website

**Test Conditions**

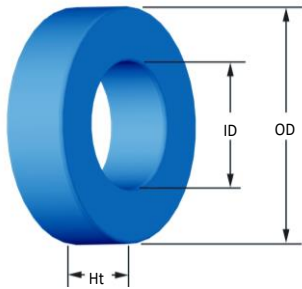
<b>Winding</b>	N=45, #30 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.015 V
<b>A<sub>L</sub> Tolerance</b>	±8% (±12% MS-Sendust)

**Coating/Packaging Information**

<b>Coating Type</b>	Parylene N
<b>Voltage Breakdown</b>	500 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	10,800 Pcs/Box

**Winding Table**

Wire Size	AWG	20	22	24	26	28	30	32	34	36	38	40
	mm	0.800	0.630	0.500	0.400	0.315	0.250	0.200	0.160	0.125	0.100	0.080
<b>Single Layer</b>	Turns	11	14	18	23	29	37	47	59	74	93	116
	Rdc(Ω)	5.8 m	11.7 m	23.9 m	48.6 m	97.4 m	197.6 m	399.2 m	796.9 m	1.6	3.2	6.3
<b>Full Winding</b>	Turns	10	16	25	38	59	92	142	219	339	525	813
	Rdc(Ω)	5.2 m	13.4 m	33.2 m	80.2 m	198.1 m	491.3 m	1.2	3.0	7.3	17.9	44.2



**Typical Part Number:** **MS - 040 125 - 2**

Material Type → MS  
 OD in 100th inches → 040  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) →

**Physical Dimensions**

OD	Bare Core Nominal	10.16 mm	0.400 in
	Coated Core (max)	10.8 mm	0.425 in
ID	Bare Core Nominal	5.08 mm	0.200 in
	Coated Core (min)	4.57 mm	0.180 in
Ht	Bare Core Nominal	3.96 mm	0.156 in
	Coated Core (max)	4.57 mm	0.180 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.100 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	2.38 cm
<b>Ve</b>	Effective Core Volume	0.238 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	0.164 cm <sup>2</sup>
<b>SA</b>	Surface Area	4.20 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	1.77 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	7	MS-040014-2		MP-040014-2	HF-040014-2	FS-040014-2			
26μ	14	MS-040026-2	SH-040026-2	MP-040026-2	HF-040026-2	FS-040026-2	OC-040026-2	OD-040026-2	OE-040026-2
40μ	21	MS-040040-2				FS-040040-2			
60μ	32	MS-040060-2	SH-040060-2	MP-040060-2	HF-040060-2	FS-040060-2	OC-040060-2	OD-040060-2	OE-040060-2
75μ	40	MS-040075-2				FS-040075-2			
90μ	48	MS-040090-2				FS-040090-2	OC-040090-2	OD-040090-2	OE-040090-2
125μ	66	MS-040125-2	SH-040125-2	MP-040125-2	HF-040125-2		OC-040125-2		
147μ	78	MS-040147-2		MP-040147-2	HF-040147-2				
160μ	84	MS-040160-2		MP-040160-2	HF-040160-2				
173μ	92			MP-040173-2					
205μ	105			MP-040205-2					
<b>Approx. Unit Weight:</b>		1.4 g	1.3 g	1.8 g	1.6 g	1.6 g	1.6 g	1.6 g	1.6 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=55, #30 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.024 V
<b>A<sub>L</sub> Tolerance</b>	±8% (±12% MS-Sendust)

**Coating/Packaging Information**

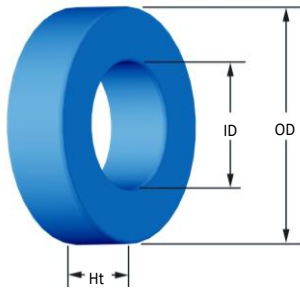
<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	9,000 Pcs/Box

**Winding Table**

Wire Size	AWG	20	22	24	26	28	30	32	34	36	38	40
	mm	0.800	0.630	0.500	0.400	0.315	0.250	0.200	0.160	0.125	0.100	0.080
<b>Single Layer</b>	Turns	12	15	19	25	32	40	50	63	80	100	125
	Rdc(Ω)	7.0 m	14.0 m	28.2 m	59.1 m	120.3 m	239.1 m	475.2 m	952.3 m	1.9	3.8	7.6
<b>Full Winding</b>	Turns	12	18	28	44	68	105	162	251	389	602	931
	Rdc(Ω)	7.0 m	16.8 m	41.6 m	104.0 m	255.5 m	627.5 m	1.5	3.8	9.4	23.0	56.6



# 0.440 in./11.18 mm OD Toroid



**Typical Part Number:** **MS - 044 125 - 2**

Material Type → MS  
 OD in 100th inches → 044  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) →

### Physical Dimensions

OD	Bare Core Nominal	11.18 mm	0.440 in
	Coated Core (max)	11.89 mm	0.468 in
ID	Bare Core Nominal	6.35 mm	0.250 in
	Coated Core (min)	5.89 mm	0.232 in
Ht	Bare Core Nominal	3.96 mm	0.156 in
	Coated Core (max)	4.72 mm	0.186 in

### Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	0.0906 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	2.69 cm
<b>Ve</b>	Effective Core Volume	0.244 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	0.272 cm <sup>2</sup>
<b>SA</b>	Surface Area	5.10 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	1.84 cm

### Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	6	MS-044014-2		MP-044014-2	HF-044014-2	FS-044014-2			
26μ	11	MS-044026-2	SH-044026-2	MP-044026-2	HF-044026-2	FS-044026-2	OC-044026-2	OD-044026-2	OE-044026-2
40μ	17	MS-044040-2				FS-044040-2			
60μ	26	MS-044060-2	SH-044060-2	MP-044060-2	HF-044060-2	FS-044060-2	OC-044060-2	OD-044060-2	OE-044060-2
75μ	32	MS-044075-2				FS-044075-2			
90μ	38	MS-044090-2				FS-044090-2	OC-044090-2	OD-044090-2	OE-044090-2
125μ	53	MS-044125-2	SH-044125-2	MP-044125-2	HF-044125-2		OC-044125-2		
147μ	63	MS-044147-2		MP-044147-2	HF-044147-2				
160μ	68	MS-044160-2		MP-044160-2	HF-044160-2				
173μ	74			MP-044173-2					
205μ	88			MP-044205-2					
<b>Approx. Unit Weight:</b>		1.4 g	1.4 g	1.8 g	1.7 g	1.7 g	1.6 g	1.6 g	1.6 g

\*OP Material is available, further details listed on website

### Test Conditions

<b>Winding</b>	N=60, #30 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.024 V
<b>A<sub>L</sub> Tolerance</b>	±8% (±12% MS-Sendust)

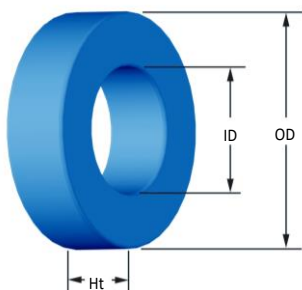
### Coating/Packaging Information

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	9,000 Pcs/Box

### Winding Table

Wire Size	AWG	18	20	22	24	26	28	30	32	34	36	38
	mm	1.000	0.800	0.630	0.500	0.400	0.315	0.250	0.200	0.160	0.125	0.100
<b>Single Layer</b>	Turns	12	16	20	26	33	42	52	66	83	103	129
	Rdc(Ω)	4.6 m	9.8 m	19.5 m	40.2 m	81.2 m	164.4 m	323.6 m	653.3 m	1.3	2.6	5.1
<b>Full Winding</b>	Turns	13	20	30	47	73	113	174	270	417	646	999
	Rdc(Ω)	5.0 m	12.2 m	29.2 m	72.7 m	179.6 m	442.2 m	1.1	2.7	6.6	16.2	39.8





<b>Typical Part Number:</b>	<b>MS - 050 125 - 2</b>
Material Type	↑
OD in 100th inches	↑
Reference Permeability	↑
Finish	↑
Area for Special Height (in XX.Xmm)	↑

### Physical Dimensions

Dimension	Core Type	Value (mm)	Value (in)
OD	Bare Core Nominal	12.7 mm	0.500 in
	Coated Core (max)	13.46 mm	0.530 in
ID	Bare Core Nominal	7.62 mm	0.300 in
	Coated Core (min)	6.99 mm	0.275 in
Ht	Bare Core Nominal	4.75 mm	0.187 in
	Coated Core (max)	5.51 mm	0.217 in

### Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	0.114 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	3.12 cm
<b>Ve</b>	Effective Core Volume	0.356 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	0.384 cm <sup>2</sup>
<b>SA</b>	Surface Area	6.67 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	2.10 cm

### Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	6.4	MS-050014-2		MP-050014-2	HF-050014-2	FS-050014-2			
26μ	12	MS-050026-2	SH-050026-2	MP-050026-2	HF-050026-2	FS-050026-2	OC-050026-2	OD-050026-2	OE-050026-2
40μ	18	MS-050040-2				FS-050040-2			
60μ	27	MS-050060-2	SH-050060-2	MP-050060-2	HF-050060-2	FS-050060-2	OC-050060-2	OD-050060-2	OE-050060-2
75μ	34	MS-050075-2				FS-050075-2			
90μ	40	MS-050090-2				FS-050090-2	OC-050090-2	OD-050090-2	OE-050090-2
125μ	56	MS-050125-2	SH-050125-2	MP-050125-2	HF-050125-2		OC-050125-2		
147μ	67	MS-050147-2		MP-050147-2	HF-050147-2				
160μ	72	MS-050160-2		MP-050160-2	HF-050160-2				
173μ	79			MP-050173-2					
205μ	93			MP-050205-2					
<b>Approx. Unit Weight:</b>		2.1 g	2.0 g	2.6 g	2.4 g	2.4 g	2.4 g	2.4 g	2.4 g

\*OP Material is available, further details listed on website

### Test Conditions

<b>Winding</b>	N=50, #28 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.025 V
<b>A<sub>L</sub> Tolerance</b>	±8%

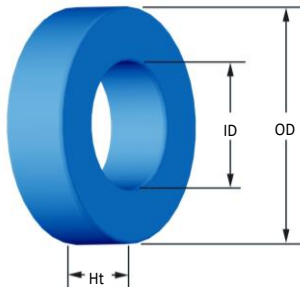
### Coating/Packaging Information

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	5,400 Pcs/Box

### Winding Table

Wire Size	AWG	16	18	20	22	24	26	28	30	32	34	36
	mm	1.250	1.000	0.800	0.630	0.500	0.400	0.315	0.250	0.200	0.160	0.125
<b>Single Layer</b>	Turns	11	15	19	24	31	39	50	63	79	98	123
	Rdc(Ω)	3.0 m	6.6 m	13.3 m	26.6 m	54.7 m	109.5 m	223.3 m	447.5 m	892.5 m	1.8	3.5
<b>Full Winding</b>	Turns	12	18	28	43	66	102	158	245	380	587	909
	Rdc(Ω)	3.3 m	7.9 m	19.5 m	47.7 m	116.6 m	286.5 m	705.7 m	1.7	4.3	10.5	26.0

# 0.655 in./16.64 mm OD Toroid



**Typical Part Number:** **MS - 065 125 - 2**

Material Type → MS  
 OD in 100th inches → 065  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) →

## Physical Dimensions

OD	Bare Core Nominal	16.64 mm	0.655 in
	Coated Core (max)	17.4 mm	0.685 in
ID	Bare Core Nominal	10.16 mm	0.400 in
	Coated Core (min)	9.53 mm	0.375 in
Ht	Bare Core Nominal	6.35 mm	0.250 in
	Coated Core (max)	7.11 mm	0.280 in

## Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	0.192 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	4.11 cm
<b>Ve</b>	Effective Core Volume	0.789 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	0.713 cm <sup>2</sup>
<b>SA</b>	Surface Area	11.2 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	2.69 cm

## Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	8	MS-065014-2		MP-065014-2	HF-065014-2	FS-065014-2			
26μ	15	MS-065026-2	SH-065026-2	MP-065026-2	HF-065026-2	FS-065026-2	OC-065026-2	OD-065026-2	OE-065026-2
40μ	23	MS-065040-2				FS-065040-2			
60μ	35	MS-065060-2	SH-065060-2	MP-065060-2	HF-065060-2	FS-065060-2	OC-065060-2	OD-065060-2	OE-065060-2
75μ	43	MS-065075-2				FS-065075-2			
90μ	52	MS-065090-2				FS-065090-2	OC-065090-2	OD-065090-2	OE-065090-2
125μ	72	MS-065125-2	SH-065125-2	MP-065125-2	HF-065125-2		OC-065125-2		
147μ	88	MS-065147-2		MP-065147-2	HF-065147-2				
160μ	92	MS-065160-2		MP-065160-2	HF-065160-2				
173μ	104			MP-065173-2					
205μ	123			MP-065205-2					
<b>Approx. Unit Weight:</b>		4.6 g	4.4 g	5.9 g	5.4 g	5.4 g	5.2 g	5.2 g	5.2 g

\*OP Material is available, further details listed on website

## Test Conditions

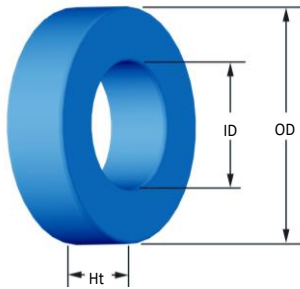
<b>Winding</b>	N=70, #28 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.060 V
<b>A<sub>L</sub> Tolerance</b>	±8%

## Coating/Packaging Information

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	2,880 Pcs/Box

## Winding Table

Wire Size	AWG	12	14	16	18	20	22	24	26	28	30	32
	mm	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315	0.250	0.200
<b>Single Layer</b>	Turns	10	13	17	21	27	34	44	55	69	86	108
	Rdc(Ω)	1.4 m	2.9 m	6.0 m	11.8 m	24.1 m	48.3 m	99.4 m	197.7 m	394.4 m	781.8 m	1.6
<b>Full Winding</b>	Turns	9	14	21	33	51	79	123	190	295	456	706
	Rdc(Ω)	1.3 m	3.1 m	7.4 m	18.5 m	45.6 m	112.3 m	278.0 m	682.9 m	1.7	4.1	10.2



**Typical Part Number:** **MS - 068 125 - 2**

Material Type → MS  
 OD in 100th inches → 068  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) →

**Physical Dimensions**

OD	Bare Core Nominal	17.27 mm	0.680 in
	Coated Core (max)	18.03 mm	0.710 in
ID	Bare Core Nominal	9.65 mm	0.380 in
	Coated Core (min)	9.02 mm	0.355 in
Ht	Bare Core Nominal	6.35 mm	0.250 in
	Coated Core (max)	7.11 mm	0.280 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.232 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	4.14 cm
<b>Ve</b>	Effective Core Volume	0.961 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	0.639 cm <sup>2</sup>
<b>SA</b>	Surface Area	11.7 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	2.77 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	10	MS-068014-2		MP-068014-2	HF-068014-2	FS-068014-2			
26μ	19	MS-068026-2	SH-068026-2	MP-068026-2	HF-068026-2	FS-068026-2	OC-068026-2	OD-068026-2	OE-068026-2
40μ	29	MS-068040-2				FS-068040-2			
60μ	43	MS-068060-2	SH-068060-2	MP-068060-2	HF-068060-2	FS-068060-2	OC-068060-2	OD-068060-2	OE-068060-2
75μ	53	MS-068075-2				FS-068075-2			
90μ	64	MS-068090-2				FS-068090-2	OC-068090-2	OD-068090-2	OE-068090-2
125μ	89	MS-068125-2	SH-068125-2	MP-068125-2	HF-068125-2		OC-068125-2		
147μ	105	MS-068147-2		MP-068147-2	HF-068147-2				
160μ	114	MS-068160-2		MP-068160-2	HF-068160-2				
173μ	123			MP-068173-2					
205μ	146			MP-068205-2					
<b>Approx. Unit Weight:</b>		5.6 g	5.4 g	7.2 g	6.6 g	6.5 g	6.4 g	6.4 g	6.4 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=70, #28 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.072 V
<b>A<sub>L</sub> Tolerance</b>	±8%

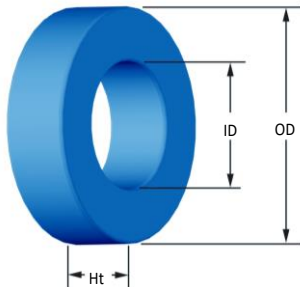
**Coating/Packaging Information**

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	2,340 Pcs/Box

**Winding Table**

Wire Size	AWG	14	16	18	20	22	24	26	28	30	32	34
	mm	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315	0.250	0.200	0.160
<b>Single Layer</b>	Turns	12	15	20	26	32	41	52	65	82	102	128
	Rdc(Ω)	2.8 m	5.5 m	11.6 m	24.0 m	47.0 m	95.7 m	193.1 m	383.8 m	770.0 m	1.5	3.0
<b>Full Winding</b>	Turns	12	19	30	46	71	110	170	264	408	632	978
	Rdc(Ω)	2.8 m	6.9 m	17.4 m	42.5 m	104.2 m	256.8 m	631.1 m	1.6	3.8	9.4	23.2

# 0.680 in./17.27 mm OD Toroid



**Typical Part Number:** **MS - 068 125 - 2 H127**

Material Type \_\_\_\_\_  
 OD in 100th inches \_\_\_\_\_  
 Reference Permeability \_\_\_\_\_  
 Finish \_\_\_\_\_  
 Special Height (in XX.Xmm) \_\_\_\_\_

## Physical Dimensions

OD	Bare Core Nominal	17.27 mm	0.680 in
	Coated Core (max)	18.03 mm	0.710 in
ID	Bare Core Nominal	9.65 mm	0.380 in
	Coated Core (min)	9.02 mm	0.355 in
Ht	Bare Core Nominal	12.7 mm	0.500 in
	Coated Core (max)	13.46 mm	0.530 in

## Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	0.464 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	4.14 cm
<b>Ve</b>	Effective Core Volume	1.92 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	0.639 cm <sup>2</sup>
<b>SA</b>	Surface Area	15.8 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	4.04 cm

## Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	20	MS-068014-2H127		MP-068014-2H127	HF-068014-2H127	FS-068014-2H127			
26μ	38	MS-068026-2H127	SH-068026-2H127	MP-068026-2H127	HF-068026-2H127	FS-068026-2H127	OC-068026-2H127	OD-068026-2H127	OE-068026-2H127
40μ	58	MS-068040-2H127				FS-068040-2H127			
60μ	86	MS-068060-2H127	SH-068060-2H127	MP-068060-2H127	HF-068060-2H127	FS-068060-2H127	OC-068060-2H127	OD-068060-2H127	OE-068060-2H127
75μ	106	MS-068075-2H127				FS-068075-2H127			
90μ	128	MS-068090-2H127				FS-068090-2H127	OC-068090-2H127	OD-068090-2H127	OE-068090-2H127
125μ	178	MS-068125-2H127	SH-068125-2H127	MP-068125-2H127	HF-068125-2H127		OC-068125-2H127		
147μ	210	MS-068147-2H127		MP-068147-2H127	HF-068147-2H127				
160μ	228	MS-068160-2H127		MP-068160-2H127	HF-068160-2H127				
173μ	246			MP-068173-2H127					
205μ	292			MP-068205-2H127					
<b>Approx. Unit Weight:</b>		11 g	11 g	14 g	13 g	13 g	13 g	13 g	13 g

\*OP Material is available, further details listed on website

## Test Conditions

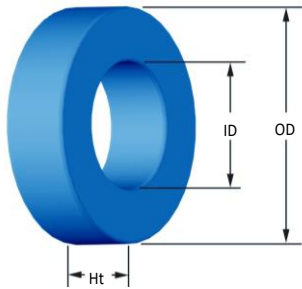
<b>Winding</b>	N=70, #28 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.14 V
<b>A<sub>L</sub> Tolerance</b>	±8%

## Coating/Packaging Information

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	900 Pcs/Box

## Winding Table

Wire Size	AWG	14	16	18	20	22	24	26	28	30	32	34
	mm	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315	0.250	0.200	0.160
<b>Single Layer</b>	Turns	12	15	20	26	32	41	52	65	82	102	128
	Rdc(Ω)	4.0 m	8.0 m	16.9 m	35.0 m	68.5 m	139.5 m	281.4 m	559.5 m	1.1	2.2	4.4
<b>Full Winding</b>	Turns	12	19	30	46	71	110	170	264	408	632	978
	Rdc(Ω)	4.0 m	10.1 m	25.4 m	61.9 m	151.9 m	374.3 m	920.1 m	2.3	5.6	13.8	33.9



**Typical Part Number:** **MS - 080 125 - 2**

Material Type → MS  
 OD in 100th inches → 080  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) → (none)

**Physical Dimensions**

OD	Bare Core Nominal	20.32 mm	0.800 in
	Coated Core (max)	21.08 mm	0.830 in
ID	Bare Core Nominal	12.7 mm	0.500 in
	Coated Core (min)	12.07 mm	0.475 in
Ht	Bare Core Nominal	6.35 mm	0.250 in
	Coated Core (max)	7.11 mm	0.280 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.226 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	5.09 cm
<b>Ve</b>	Effective Core Volume	1.15 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	1.14 cm <sup>2</sup>
<b>SA</b>	Surface Area	15.5 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	2.93 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	7.8	MS-080014-2		MP-080014-2	HF-080014-2	FS-080014-2			
26μ	14	MS-080026-2	SH-080026-2	MP-080026-2	HF-080026-2	FS-080026-2	OC-080026-2	OD-080026-2	OE-080026-2
40μ	21	MS-080040-2				FS-080040-2			
60μ	32	MS-080060-2	SH-080060-2	MP-080060-2	HF-080060-2	FS-080060-2	OC-080060-2	OD-080060-2	OE-080060-2
75μ	41	MS-080075-2				FS-080075-2			
90μ	49	MS-080090-2				FS-080090-2	OC-080090-2	OD-080090-2	OE-080090-2
125μ	68	MS-080125-2	SH-080125-2	MP-080125-2	HF-080125-2		OC-080125-2		
147μ	81	MS-080147-2		MP-080147-2	HF-080147-2				
160μ	87	MS-080160-2		MP-080160-2	HF-080160-2				
173μ	96			MP-080173-2					
205μ	113			MP-080205-2					
<b>Approx. Unit Weight:</b>		6.7 g	6.4 g	8.6 g	7.9 g	7.8 g	7.6 g	7.6 g	7.6 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=90, #28 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.090 V
<b>A<sub>L</sub> Tolerance</b>	±8%

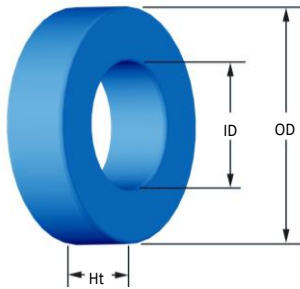
**Coating/Packaging Information**

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	1,800 Pcs/Box

**Winding Table**

Wire Size	AWG	10	12	14	16	18	20	22	24	26	28	30
	mm	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315	0.250
<b>Single Layer</b>	Turns	10	13	17	22	28	35	44	56	70	88	110
	Rdc(Ω)	1.0 m	2.0 m	4.1 m	8.5 m	17.1 m	34.1 m	68.1 m	137.9 m	274.2 m	548.2 m	1.1
<b>Full Winding</b>	Turns	9	14	22	34	53	82	127	197	305	472	731
	Rdc(Ω)	0.9 m	2.1 m	5.3 m	13.1 m	32.4 m	79.8 m	196.7 m	485.2 m	1.2	2.9	7.2

# 0.800 in./20.32 mm OD Toroid



**Typical Part Number:** **MS - 080 125 - 2 H127**

Material Type → MS  
 OD in 100th inches → 080  
 Reference Permeability → 125  
 Finish → 2  
 Special Height (in XX.Xmm) → H127

## Physical Dimensions

OD	Bare Core Nominal	20.32 mm	0.800 in
	Coated Core (max)	21.08 mm	0.830 in
ID	Bare Core Nominal	12.7 mm	0.500 in
	Coated Core (min)	12.07 mm	0.475 in
Ht	Bare Core Nominal	12.7 mm	0.500 in
	Coated Core (max)	13.46 mm	0.530 in

## Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	0.452 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	5.09 cm
<b>Ve</b>	Effective Core Volume	2.30 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	1.14 cm <sup>2</sup>
<b>SA</b>	Surface Area	20.3 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	4.20 cm

## Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	15.6	MS-080014-2H127		MP-080014-2H127	HF-080014-2H127	FS-080014-2H127			
26μ	28	MS-080026-2H127	SH-080026-2H127	MP-080026-2H127	HF-080026-2H127	FS-080026-2H127	OC-080026-2H127	OD-080026-2H127	OE-080026-2H127
40μ	42	MS-080040-2H127				FS-080040-2H127			
60μ	64	MS-080060-2H127	SH-080060-2H127	MP-080060-2H127	HF-080060-2H127	FS-080060-2H127	OC-080060-2H127	OD-080060-2H127	OE-080060-2H127
75μ	82	MS-080075-2H127				FS-080075-2H127			
90μ	98	MS-080090-2H127				FS-080090-2H127	OC-080090-2H127	OD-080090-2H127	OE-080090-2H127
125μ	136	MS-080125-2H127	SH-080125-2H127	MP-080125-2H127	HF-080125-2H127		OC-080125-2H127		
147μ	162	MS-080147-2H127		MP-080147-2H127	HF-080147-2H127				
160μ	174	MS-080160-2H127		MP-080160-2H127	HF-080160-2H127				
173μ	192			MP-080173-2H127					
205μ	226			MP-080205-2H127					
<b>Approx. Unit Weight:</b>		13 g	13 g	17 g	16 g	16 g	15 g	15 g	15 g

\*OP Material is available, further details listed on website

## Test Conditions

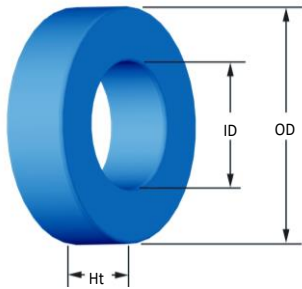
<b>Winding</b>	N=90, #28 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.18 V
<b>A<sub>L</sub> Tolerance</b>	±8%

## Coating/Packaging Information

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	900 Pcs/Box

## Winding Table

Wire Size	AWG	10	12	14	16	18	20	22	24	26	28	30
	mm	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315	0.250
<b>Single Layer</b>	Turns	10	13	17	22	28	35	44	56	70	88	110
	Rdc(Ω)	1.4 m	2.8 m	5.9 m	12.1 m	24.6 m	48.9 m	97.7 m	197.8 m	393.2 m	786.0 m	1.6
<b>Full Winding</b>	Turns	9	14	22	34	53	82	127	197	305	472	731
	Rdc(Ω)	1.2 m	3.1 m	7.6 m	18.8 m	46.5 m	114.5 m	282.0 m	695.7 m	1.7	4.2	10.4



**Typical Part Number:** **MS - 090 125 - 2**

Material Type → MS  
 OD in 100th inches → 090  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) → (none)

**Physical Dimensions**

OD	Bare Core Nominal	22.86 mm	0.900 in
	Coated Core (max)	23.62 mm	0.930 in
ID	Bare Core Nominal	13.97 mm	0.550 in
	Coated Core (min)	13.39 mm	0.527 in
Ht	Bare Core Nominal	7.62 mm	0.300 in
	Coated Core (max)	8.38 mm	0.330 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.331 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	5.67 cm
<b>Ve</b>	Effective Core Volume	1.88 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	1.41 cm <sup>2</sup>
<b>SA</b>	Surface Area	19.8 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	3.37 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	9.9	MS-090014-2		MP-090014-2	HF-090014-2	FS-090014-2			
26μ	19	MS-090026-2	SH-090026-2	MP-090026-2	HF-090026-2	FS-090026-2	OC-090026-2	OD-090026-2	OE-090026-2
40μ	29	MS-090040-2				FS-090040-2			
60μ	43	MS-090060-2	SH-090060-2	MP-090060-2	HF-090060-2	FS-090060-2	OC-090060-2	OD-090060-2	OE-090060-2
75μ	54	MS-090075-2				FS-090075-2			
90μ	65	MS-090090-2				FS-090090-2	OC-090090-2	OD-090090-2	OE-090090-2
125μ	90	MS-090125-2	SH-090125-2	MP-090125-2	HF-090125-2		OC-090125-2		
147μ	106	MS-090147-2		MP-090147-2	HF-090147-2				
160μ	115	MS-090160-2		MP-090160-2	HF-090160-2				
173μ	124			MP-090173-2					
205μ	147			MP-090205-2					
<b>Approx. Unit Weight:</b>		11 g	10 g	14 g	13 g	13 g	12 g	12 g	12 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=80, #26 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.12 V
<b>A<sub>L</sub> Tolerance</b>	±8%

**Coating/Packaging Information**

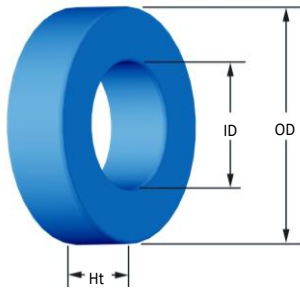
<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	1,210 Pcs/Box (1,089: MP, HF, OP)

**Winding Table**

Wire Size	AWG	10	12	14	16	18	20	22	24	26	28	30
	mm	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315	0.250
<b>Single Layer</b>	Turns	11	15	19	24	31	39	50	62	78	98	123
	Rdc(Ω)	1.2 m	2.6 m	5.3 m	10.6 m	21.8 m	43.7 m	89.1 m	175.8 m	351.6 m	702.7 m	1.4
<b>Full Winding</b>	Turns	11	18	27	42	65	101	157	243	376	581	900
	Rdc(Ω)	1.2 m	3.2 m	7.5 m	18.6 m	45.8 m	113.2 m	279.8 m	688.8 m	1.7	4.2	10.3



# 0.928 in./23.57 mm OD Toroid



**Typical Part Number: MS - 092 125 - 2**

Material Type → MS  
 OD in 100th inches → 092  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) →

## Physical Dimensions

OD	Bare Core Nominal	23.57 mm	0.928 in
	Coated Core (max)	24.28 mm	0.956 in
ID	Bare Core Nominal	14.4 mm	0.567 in
	Coated Core (min)	13.77 mm	0.542 in
Ht	Bare Core Nominal	8.89 mm	0.350 in
	Coated Core (max)	9.7 mm	0.382 in

## Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	0.388 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	5.88 cm
<b>Ve</b>	Effective Core Volume	2.28 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	1.49 cm <sup>2</sup>
<b>SA</b>	Surface Area	21.8 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	3.68 cm

## Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	12	MS-092014-2		MP-092014-2	HF-092014-2	FS-092014-2			
26μ	22	MS-092026-2	SH-092026-2	MP-092026-2	HF-092026-2	FS-092026-2	OC-092026-2	OD-092026-2	OE-092026-2
40μ	34	MS-092040-2				FS-092040-2			
60μ	51	MS-092060-2	SH-092060-2	MP-092060-2	HF-092060-2	FS-092060-2	OC-092060-2	OD-092060-2	OE-092060-2
75μ	63	MS-092075-2				FS-092075-2			
90μ	76	MS-092090-2				FS-092090-2	OC-092090-2	OD-092090-2	OE-092090-2
125μ	105	MS-092125-2	SH-092125-2	MP-092125-2	HF-092125-2		OC-092125-2		
147μ	124	MS-092147-2		MP-092147-2	HF-092147-2				
160μ	135	MS-092160-2		MP-092160-2	HF-092160-2				
173μ	146			MP-092173-2					
205μ	173			MP-092205-2					
<b>Approx. Unit Weight:</b>		13 g	13 g	17 g	16 g	16 g	15 g	15 g	15 g

\*OP Material is available, further details listed on website

## Test Conditions

<b>Winding</b>	N=80, #26 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.14 V
<b>A<sub>L</sub> Tolerance</b>	±8%

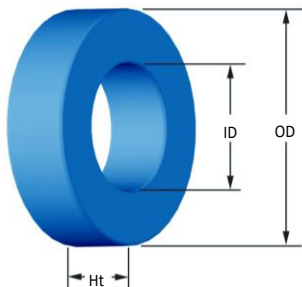
## Coating/Packaging Information

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	1,089 Pcs/Box (968: MP, HF, OP)

## Winding Table

Wire Size	AWG	10	12	14	16	18	20	22	24	26	28	30
	mm	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315	0.250
<b>Single Layer</b>	Turns	12	15	20	25	32	40	51	64	80	101	126
	Rdc(Ω)	1.4 m	2.9 m	6.1 m	12.1 m	24.6 m	49.0 m	99.3 m	198.2 m	394.0 m	791.0 m	1.6
<b>Full Winding</b>	Turns	12	19	29	45	69	107	166	257	397	615	952
	Rdc(Ω)	1.4 m	3.6 m	8.8 m	21.8 m	53.1 m	131.0 m	323.2 m	795.8 m	2.0	4.8	11.9





**Typical Part Number: MS - 106 125 - 2**

Material Type → MS  
 OD in 100th inches → 106  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) →

**Physical Dimensions**

OD	Bare Core Nominal	26.92 mm	1.060 in
	Coated Core (max)	27.69 mm	1.090 in
ID	Bare Core Nominal	14.73 mm	0.580 in
	Coated Core (min)	14.1 mm	0.555 in
Ht	Bare Core Nominal	11.18 mm	0.440 in
	Coated Core (max)	11.99 mm	0.472 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.654 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	6.35 cm
<b>Ve</b>	Effective Core Volume	4.15 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	1.56 cm <sup>2</sup>
<b>SA</b>	Surface Area	28.8 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	4.46 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	18	MS-106014-2		MP-106014-2	HF-106014-2	FS-106014-2			
26μ	32	MS-106026-2	SH-106026-2	MP-106026-2	HF-106026-2	FS-106026-2	OC-106026-2	OD-106026-2	OE-106026-2
40μ	50	MS-106040-2				FS-106040-2			
60μ	75	MS-106060-2	SH-106060-2	MP-106060-2	HF-106060-2	FS-106060-2	OC-106060-2	OD-106060-2	OE-106060-2
75μ	94	MS-106075-2				FS-106075-2			
90μ	113	MS-106090-2				FS-106090-2	OC-106090-2	OD-106090-2	OE-106090-2
125μ	157	MS-106125-2	SH-106125-2	MP-106125-2	HF-106125-2		OC-106125-2		
147μ	185	MS-106147-2		MP-106147-2	HF-106147-2				
160μ	201	MS-106160-2		MP-106160-2	HF-106160-2				
173μ	217			MP-106173-2					
205μ	257			MP-106205-2					
<b>Approx. Unit Weight:</b>		24 g	23 g	31 g	29 g	28 g	28 g	28 g	28 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=80, #26 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.23 V
<b>A<sub>L</sub> Tolerance</b>	±8%

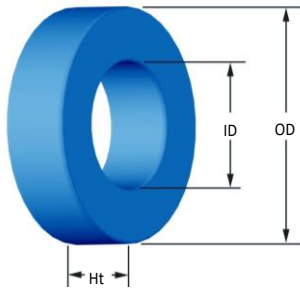
**Coating/Packaging Information**

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	600 Pcs/Box (500: MP, HF, OP)

**Winding Table**

Wire Size	AWG	10	12	14	16	18	20	22	24	26	28	30
	mm	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315	0.250
<b>Single Layer</b>	Turns	12	16	20	26	33	41	52	66	82	103	129
	Rdc(Ω)	1.8 m	3.7 m	7.4 m	15.3 m	30.8 m	60.9 m	122.8 m	247.8 m	489.7 m	978.2 m	1.9
<b>Full Winding</b>	Turns	13	20	30	47	73	112	174	269	417	645	998
	Rdc(Ω)	1.9 m	4.6 m	11.1 m	27.6 m	68.1 m	166.3 m	410.8 m	1.0	2.5	6.1	15.1

# 1.060 in./26.92 mm OD Toroid



**Typical Part Number:** **MS - 107 125 - 2**

Material Type → MS  
 OD in 100th inches → 107  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) →

### Physical Dimensions

OD	Bare Core Nominal	26.92 mm	1.060 in
	Coated Core (max)	27.69 mm	1.090 in
ID	Bare Core Nominal	14.73 mm	0.580 in
	Coated Core (min)	14.1 mm	0.555 in
Ht	Bare Core Nominal	8.64 mm	0.340 in
	Coated Core (max)	9.45 mm	0.372 in

### Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	0.497 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	6.35 cm
<b>Ve</b>	Effective Core Volume	3.16 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	1.56 cm <sup>2</sup>
<b>SA</b>	Surface Area	26.3 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	3.95 cm

### Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	13.8	MS-107014-2		MP-107014-2	HF-107014-2	FS-107014-2			
26μ	25.5	MS-107026-2	SH-107026-2	MP-107026-2	HF-107026-2	FS-107026-2	OC-107026-2	OD-107026-2	OE-107026-2
40μ	39	MS-107040-2				FS-107040-2			
60μ	59	MS-107060-2	SH-107060-2	MP-107060-2	HF-107060-2	FS-107060-2	OC-107060-2	OD-107060-2	OE-107060-2
75μ	73.7	MS-107075-2				FS-107075-2			
90μ	88.4	MS-107090-2				FS-107090-2	OC-107090-2	OD-107090-2	OE-107090-2
125μ	123	MS-107125-2	SH-107125-2	MP-107125-2	HF-107125-2		OC-107125-2		
147μ	145	MS-107147-2		MP-107147-2	HF-107147-2				
160μ	157	MS-107160-2		MP-107160-2	HF-107160-2				
173μ	170			MP-107173-2					
205μ	197			MP-107205-2					
<b>Approx. Unit Weight:</b>		18 g	18 g	24 g	22 g	21 g	21 g	21 g	21 g

\*OP Material is available, further details listed on website

### Test Conditions

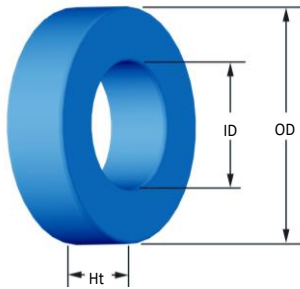
<b>Winding</b>	N=80, #26 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.18 V
<b>A<sub>L</sub> Tolerance</b>	±8%

### Coating/Packaging Information

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	900 Pcs/Box (600: MP, HF, OP)

### Winding Table

Wire Size	AWG	10	12	14	16	18	20	22	24	26	28	30
	mm	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315	0.250
<b>Single Layer</b>	Turns	12	16	20	26	33	41	52	66	82	103	129
	Rdc(Ω)	1.6 m	3.3 m	6.5 m	13.5 m	27.3 m	53.9 m	108.8 m	219.6 m	433.9 m	866.9 m	1.7
<b>Full Winding</b>	Turns	13	20	30	47	73	112	174	269	417	645	998
	Rdc(Ω)	1.7 m	4.1 m	9.8 m	24.4 m	60.4 m	147.3 m	364.0 m	895.1 m	2.2	5.4	13.4



**Typical Part Number: MS - 108 125 - 2**

Material Type → MS  
 OD in 100th inches → 108  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) →

**Physical Dimensions**

OD	Bare Core Nominal	26.92 mm	1.060 in
	Coated Core (max)	27.81 mm	1.095 in
ID	Bare Core Nominal	14.73 mm	0.580 in
	Coated Core (min)	14.1 mm	0.555 in
Ht	Bare Core Nominal	14 mm	0.551 in
	Coated Core (max)	15 mm	0.591 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.819 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	6.35 cm
<b>Ve</b>	Effective Core Volume	5.20 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	1.56 cm <sup>2</sup>
<b>SA</b>	Surface Area	31.9 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	5.08 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	22	MS-108014-2		MP-108014-2	HF-108014-2	FS-108014-2			
26μ	40.7	MS-108026-2	SH-108026-2	MP-108026-2	HF-108026-2	FS-108026-2	OC-108026-2	OD-108026-2	OE-108026-2
40μ	62.7	MS-108040-2				FS-108040-2			
60μ	94	MS-108060-2	SH-108060-2	MP-108060-2	HF-108060-2	FS-108060-2	OC-108060-2	OD-108060-2	OE-108060-2
75μ	117.5	MS-108075-2				FS-108075-2			
90μ	141	MS-108090-2				FS-108090-2	OC-108090-2	OD-108090-2	OE-108090-2
125μ	195.8	MS-108125-2	SH-108125-2	MP-108125-2	HF-108125-2		OC-108125-2		
147μ	230.3	MS-108147-2		MP-108147-2	HF-108147-2				
160μ	250.6	MS-108160-2		MP-108160-2	HF-108160-2				
173μ	271			MP-108173-2					
205μ	321			MP-108205-2					
<b>Approx. Unit Weight:</b>		30 g	29 g	39 g	36 g	35 g	35 g	35 g	35 g

\*OP Material is available, further details listed on website

**Test Conditions**

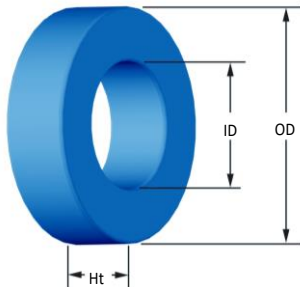
<b>Winding</b>	N=80, #26 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.29 V
<b>A<sub>L</sub> Tolerance</b>	±8%

**Coating/Packaging Information**

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	500 Pcs/Box (400: MP, HF, OP)

**Winding Table**

Wire Size	AWG	10	12	14	16	18	20	22	24	26	28	30
	mm	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315	0.250
<b>Single Layer</b>	Turns	12	16	20	26	33	41	52	66	82	103	129
	Rdc(Ω)	2.0 m	4.2 m	8.4 m	17.4 m	35.0 m	69.2 m	139.7 m	281.9 m	557.1 m	1.1	2.2
<b>Full Winding</b>	Turns	13	20	30	47	73	112	174	269	417	645	998
	Rdc(Ω)	2.2 m	5.3 m	12.6 m	31.4 m	77.5 m	189.2 m	467.3 m	1.1	2.8	7.0	17.1



**Typical Part Number: MS - 109 125 - 2**

Material Type → MS  
 OD in 100th inches → 109  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) →

**Physical Dimensions**

OD	Bare Core Nominal	26.92 mm	1.060 in
	Coated Core (max)	27.81 mm	1.095 in
ID	Bare Core Nominal	14.73 mm	0.580 in
	Coated Core (min)	14.1 mm	0.555 in
Ht	Bare Core Nominal	18 mm	0.709 in
	Coated Core (max)	19 mm	0.748 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	1.01 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	6.35 cm
<b>Ve</b>	Effective Core Volume	6.43 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	1.56 cm <sup>2</sup>
<b>SA</b>	Surface Area	35.8 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	5.88 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	28	MS-109014-2		MP-109014-2	HF-109014-2	FS-109014-2			
26μ	52	MS-109026-2	SH-109026-2	MP-109026-2	HF-109026-2	FS-109026-2	OC-109026-2	OD-109026-2	OE-109026-2
40μ	80	MS-109040-2				FS-109040-2			
60μ	120	MS-109060-2	SH-109060-2	MP-109060-2	HF-109060-2	FS-109060-2	OC-109060-2	OD-109060-2	OE-109060-2
75μ	150	MS-109075-2				FS-109075-2			
90μ	180	MS-109090-2				FS-109090-2	OC-109090-2	OD-109090-2	OE-109090-2
125μ	250	MS-109125-2	SH-109125-2	MP-109125-2	HF-109125-2		OC-109125-2		
147μ	294	MS-109147-2		MP-109147-2	HF-109147-2				
160μ	320	MS-109160-2		MP-109160-2	HF-109160-2				
173μ	346			MP-109173-2					
205μ	410			MP-109205-2					
<b>Approx. Unit Weight:</b>		37 g	36 g	48 g	44 g	44 g	43 g	43 g	43 g

\*OP Material is available, further details listed on website

**Test Conditions**

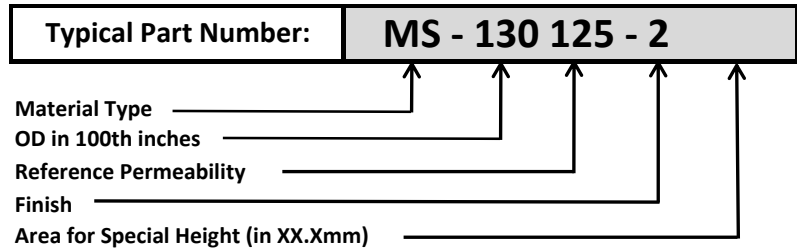
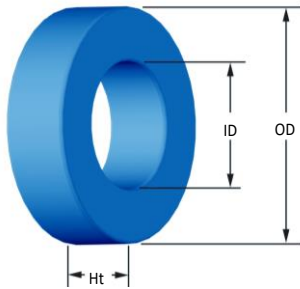
<b>Winding</b>	N=80, #26 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.36 V
<b>A<sub>L</sub> Tolerance</b>	±8%

**Coating/Packaging Information**

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	400 Pcs/Box (300: MP, HF, OP)

**Winding Table**

Wire Size	AWG	10	12	14	16	18	20	22	24	26	28	30
	mm	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315	0.250
<b>Single Layer</b>	Turns	12	16	20	26	33	41	52	66	82	103	129
	Rdc(Ω)	2.3 m	4.9 m	9.7 m	20.1 m	40.6 m	80.2 m	161.7 m	326.4 m	644.9 m	1.3	2.6
<b>Full Winding</b>	Turns	13	20	30	47	73	112	174	269	417	645	998
	Rdc(Ω)	2.5 m	6.1 m	14.6 m	36.3 m	89.7 m	219.0 m	541.0 m	1.3	3.3	8.1	19.9



**Physical Dimensions**

OD	Bare Core Nominal	33.02 mm	1.300 in
	Coated Core (max)	33.83 mm	1.332 in
ID	Bare Core Nominal	19.94 mm	0.785 in
	Coated Core (min)	19.3 mm	0.760 in
Ht	Bare Core Nominal	10.67 mm	0.420 in
	Coated Core (max)	11.61 mm	0.457 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.672 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	8.15 cm
<b>Ve</b>	Effective Core Volume	5.48 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	2.93 cm <sup>2</sup>
<b>SA</b>	Surface Area	40.1 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	4.74 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	14	MS-130014-2		MP-130014-2	HF-130014-2	FS-130014-2			
26μ	28	MS-130026-2	SH-130026-2	MP-130026-2	HF-130026-2	FS-130026-2	OC-130026-2	OD-130026-2	OE-130026-2
40μ	41	MS-130040-2				FS-130040-2			
60μ	61	MS-130060-2	SH-130060-2	MP-130060-2	HF-130060-2	FS-130060-2	OC-130060-2	OD-130060-2	OE-130060-2
75μ	76	MS-130075-2				FS-130075-2			
90μ	91	MS-130090-2				FS-130090-2	OC-130090-2	OD-130090-2	OE-130090-2
125μ	127	MS-130125-2	SH-130125-2	MP-130125-2	HF-130125-2		OC-130125-2		
147μ	150	MS-130147-2		MP-130147-2	HF-130147-2				
160μ	163	MS-130160-2		MP-130160-2	HF-130160-2				
173μ	176			MP-130173-2					
205μ	208			MP-130205-2					
<b>Approx. Unit Weight:</b>		32 g	31 g	41 g	38 g	37 g	36 g	36 g	36 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=70, #22 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.21 V
<b>A<sub>L</sub> Tolerance</b>	±8%

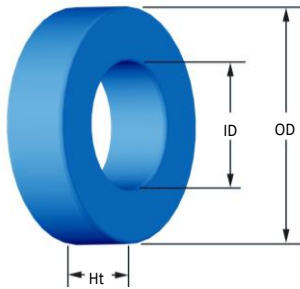
**Coating/Packaging Information**

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	512 Pcs/Box (384: MP, HF, OP)

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	14	18	22	29	36	46	58	73	91	114	142
	Rdc(Ω)	1.4 m	2.8 m	5.4 m	11.4 m	22.4 m	45.6 m	91.5 m	183.1 m	363.0 m	723.2 m	1.4
<b>Full Winding</b>	Turns	15	24	37	57	88	136	211	326	504	780	1,208
	Rdc(Ω)	1.5 m	3.7 m	9.1 m	22.3 m	54.9 m	134.9 m	332.8 m	817.6 m	2.0	4.9	12.2

# 1.300 in./33.02 mm OD Toroid



**Typical Part Number:** **MS - 131 125 - 2**

Material Type → MS  
 OD in 100th inches → 131  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) → -

## Physical Dimensions

OD	Bare Core Nominal	33.02 mm	1.300 in
	Coated Core (max)	33.83 mm	1.332 in
ID	Bare Core Nominal	19.94 mm	0.785 in
	Coated Core (min)	19.3 mm	0.760 in
Ht	Bare Core Nominal	8.76 mm	0.345 in
	Coated Core (max)	9.7 mm	0.382 in

## Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	0.551 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	8.15 cm
<b>Ve</b>	Effective Core Volume	4.49 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	2.93 cm <sup>2</sup>
<b>SA</b>	Surface Area	37.8 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	4.36 cm

## Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	11.9	MS-131014-2		MP-131014-2	HF-131014-2	FS-131014-2			
26μ	22.1	MS-131026-2	SH-131026-2	MP-131026-2	HF-131026-2	FS-131026-2	OC-131026-2	OD-131026-2	OE-131026-2
40μ	34	MS-131040-2				FS-131040-2			
60μ	51	MS-131060-2	SH-131060-2	MP-131060-2	HF-131060-2	FS-131060-2	OC-131060-2	OD-131060-2	OE-131060-2
75μ	63.8	MS-131075-2				FS-131075-2			
90μ	76.5	MS-131090-2				FS-131090-2	OC-131090-2	OD-131090-2	OE-131090-2
125μ	109	MS-131125-2	SH-131125-2	MP-131125-2	HF-131125-2		OC-131125-2		
147μ	129	MS-131147-2		MP-131147-2	HF-131147-2				
160μ	136	MS-131160-2		MP-131160-2	HF-131160-2				
173μ	151			MP-131173-2					
205μ	180			MP-131205-2					
<b>Approx. Unit Weight:</b>		26 g	25 g	33 g	31 g	31 g	30 g	30 g	30 g

\*OP Material is available, further details listed on website

## Test Conditions

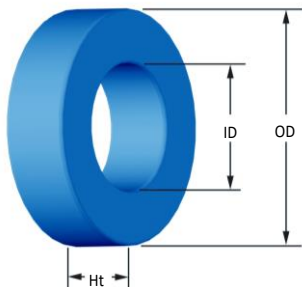
<b>Winding</b>	N=70, #22 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.17 V
<b>A<sub>L</sub> Tolerance</b>	±8%

## Coating/Packaging Information

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	576 Pcs/Box (448: MP, HF, OP)

## Winding Table

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	14	18	22	29	36	46	58	73	91	114	142
	Rdc(Ω)	1.3 m	2.6 m	5.0 m	10.5 m	20.6 m	41.9 m	84.1 m	168.3 m	333.7 m	664.9 m	1.3
<b>Full Winding</b>	Turns	15	24	37	57	88	136	211	326	504	780	1,208
	Rdc(Ω)	1.3 m	3.4 m	8.4 m	20.5 m	50.4 m	124.0 m	305.9 m	751.8 m	1.8	4.5	11.2



**Typical Part Number: MS - 132 125 - 2**

Material Type → MS  
 OD in 100th inches → 132  
 Reference Permeability → 125  
 Finish → -  
 Area for Special Height (in XX.Xmm) → 2

**Physical Dimensions**

OD	Bare Core Nominal	33.02 mm	1.300 in
	Coated Core (max)	33.83 mm	1.332 in
ID	Bare Core Nominal	19.94 mm	0.785 in
	Coated Core (min)	19.3 mm	0.760 in
Ht	Bare Core Nominal	11.18 mm	0.440 in
	Coated Core (max)	11.99 mm	0.472 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.698 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	8.15 cm
<b>Ve</b>	Effective Core Volume	5.69 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	2.93 cm <sup>2</sup>
<b>SA</b>	Surface Area	40.6 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	4.82 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	15	MS-132014-2		MP-132014-2	HF-132014-2	FS-132014-2			
26μ	28	MS-132026-2	SH-132026-2	MP-132026-2	HF-132026-2	FS-132026-2	OC-132026-2	OD-132026-2	OE-132026-2
40μ	43	MS-132040-2				FS-132040-2			
60μ	65	MS-132060-2	SH-132060-2	MP-132060-2	HF-132060-2	FS-132060-2	OC-132060-2	OD-132060-2	OE-132060-2
75μ	80.8	MS-132075-2				FS-132075-2			
90μ	96.9	MS-132090-2				FS-132090-2	OC-132090-2	OD-132090-2	OE-132090-2
125μ	135	MS-132125-2	SH-132125-2	MP-132125-2	HF-132125-2		OC-132125-2		
147μ	158	MS-132147-2		MP-132147-2	HF-132147-2				
160μ	172	MS-132160-2		MP-132160-2	HF-132160-2				
173μ	186			MP-132173-2					
205μ	215			MP-132205-2					
<b>Approx. Unit Weight:</b>		33 g	32 g	42 g	39 g	39 g	38 g	38 g	38 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=70, #22 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.22 V
<b>A<sub>L</sub> Tolerance</b>	±8%

**Coating/Packaging Information**

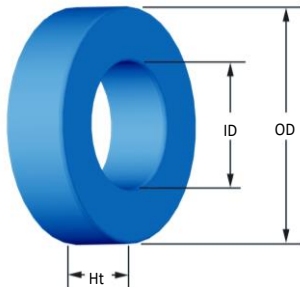
<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	448 Pcs/Box (320: MP, HF, OP)

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	14	18	22	29	36	46	58	73	91	114	142
	Rdc(Ω)	1.4 m	2.8 m	5.5 m	11.6 m	22.8 m	46.3 m	92.9 m	186.0 m	368.8 m	734.8 m	1.5
<b>Full Winding</b>	Turns	15	24	37	57	88	136	211	326	504	780	1,208
	Rdc(Ω)	1.5 m	3.8 m	9.3 m	22.7 m	55.7 m	137.0 m	338.1 m	830.8 m	2.0	5.0	12.4



# 1.300 in./33.02 mm OD Toroid



**Typical Part Number: MS - 133 125 - 2**

Material Type → MS  
 OD in 100th inches → 133  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) →

## Physical Dimensions

OD	Bare Core Nominal	33.02 mm	1.300 in
	Coated Core (max)	33.83 mm	1.332 in
ID	Bare Core Nominal	19.94 mm	0.785 in
	Coated Core (min)	19.3 mm	0.760 in
Ht	Bare Core Nominal	14 mm	0.551 in
	Coated Core (max)	15 mm	0.591 in

## Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	0.874 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	8.15 cm
<b>Ve</b>	Effective Core Volume	7.12 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	2.93 cm <sup>2</sup>
<b>SA</b>	Surface Area	44.3 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	5.42 cm

## Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	18.7	MS-133014-2		MP-133014-2	HF-133014-2	FS-133014-2			
26μ	34.7	MS-133026-2	SH-133026-2	MP-133026-2	HF-133026-2	FS-133026-2	OC-133026-2	OD-133026-2	OE-133026-2
40μ	53.3	MS-133040-2				FS-133040-2			
60μ	80	MS-133060-2	SH-133060-2	MP-133060-2	HF-133060-2	FS-133060-2	OC-133060-2	OD-133060-2	OE-133060-2
75μ	100	MS-133075-2				FS-133075-2			
90μ	120	MS-133090-2				FS-133090-2	OC-133090-2	OD-133090-2	OE-133090-2
125μ	166.7	MS-133125-2	SH-133125-2	MP-133125-2	HF-133125-2		OC-133125-2		
147μ	196	MS-133147-2		MP-133147-2	HF-133147-2				
160μ	213	MS-133160-2		MP-133160-2	HF-133160-2				
173μ	230.7			MP-133173-2					
205μ	266.7			MP-133205-2					
<b>Approx. Unit Weight:</b>		41 g	40 g	53 g	49 g	48 g	47 g	47 g	47 g

\*OP Material is available, further details listed on website

## Test Conditions

<b>Winding</b>	N=70, #22 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.27 V
<b>A<sub>L</sub> Tolerance</b>	±8%

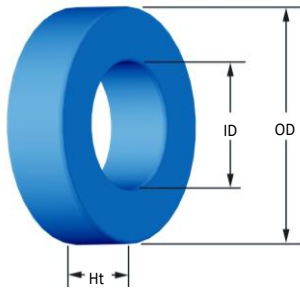
## Coating/Packaging Information

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	384 Pcs/Box (256: MP, HF, OP)

## Winding Table

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	14	18	22	29	36	46	58	73	91	114	142
	Rdc(Ω)	1.6 m	3.2 m	6.2 m	13.0 m	25.7 m	52.1 m	104.6 m	209.3 m	414.9 m	826.6 m	1.6
<b>Full Winding</b>	Turns	15	24	37	57	88	136	211	326	504	780	1,208
	Rdc(Ω)	1.7 m	4.3 m	10.4 m	25.5 m	62.7 m	154.2 m	380.4 m	934.6 m	2.3	5.7	13.9





**Typical Part Number: MS - 134 125 - 2**

Material Type → MS  
 OD in 100th inches → 134  
 Reference Permeability → 125  
 Finish → -  
 Area for Special Height (in XX.Xmm) → 2

**Physical Dimensions**

OD	Bare Core Nominal	33.02 mm	1.300 in
	Coated Core (max)	33.83 mm	1.332 in
ID	Bare Core Nominal	19.94 mm	0.785 in
	Coated Core (min)	19.3 mm	0.760 in
Ht	Bare Core Nominal	18 mm	0.709 in
	Coated Core (max)	19 mm	0.748 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	1.10 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	8.15 cm
<b>Ve</b>	Effective Core Volume	8.98 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	2.93 cm <sup>2</sup>
<b>SA</b>	Surface Area	49.1 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	6.22 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	23.8	MS-134014-2		MP-134014-2	HF-134014-2	FS-134014-2			
26μ	44	MS-134026-2	SH-134026-2	MP-134026-2	HF-134026-2	FS-134026-2	OC-134026-2	OD-134026-2	OE-134026-2
40μ	68	MS-134040-2				FS-134040-2			
60μ	102	MS-134060-2	SH-134060-2	MP-134060-2	HF-134060-2	FS-134060-2	OC-134060-2	OD-134060-2	OE-134060-2
75μ	127.5	MS-134075-2				FS-134075-2			
90μ	153	MS-134090-2				FS-134090-2	OC-134090-2	OD-134090-2	OE-134090-2
125μ	214	MS-134125-2	SH-134125-2	MP-134125-2	HF-134125-2		OC-134125-2		
147μ	250	MS-134147-2		MP-134147-2	HF-134147-2				
160μ	272	MS-134160-2		MP-134160-2	HF-134160-2				
173μ	294			MP-134173-2					
205μ	340			MP-134205-2					
<b>Approx. Unit Weight:</b>		52 g	50 g	67 g	62 g	61 g	60 g	60 g	60 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=70, #22 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.34 V
<b>A<sub>L</sub> Tolerance</b>	±8%

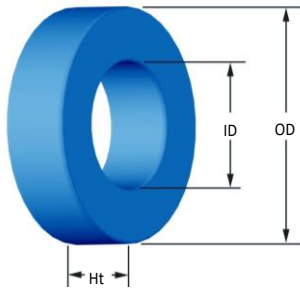
**Coating/Packaging Information**

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	320 Pcs/Box (192: MP, HF, OP)

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	14	18	22	29	36	46	58	73	91	114	142
	Rdc(Ω)	1.8 m	3.7 m	7.1 m	14.9 m	29.4 m	59.8 m	120.0 m	240.2 m	476.2 m	948.7 m	1.9
<b>Full Winding</b>	Turns	15	24	37	57	88	136	211	326	504	780	1,208
	Rdc(Ω)	1.9 m	4.9 m	12.0 m	29.3 m	72.0 m	176.9 m	436.5 m	1.1	2.6	6.5	16.0

# 1.350 in./34.29 mm OD Toroid



**Typical Part Number:** **MS - 135 125 - 2**

Material Type → MS  
 OD in 100th inches → 135  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) →

## Physical Dimensions

OD	Bare Core Nominal	34.29 mm	1.350 in
	Coated Core (max)	35.1 mm	1.382 in
ID	Bare Core Nominal	23.37 mm	0.920 in
	Coated Core (min)	22.56 mm	0.888 in
Ht	Bare Core Nominal	8.89 mm	0.350 in
	Coated Core (max)	9.83 mm	0.387 in

## Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	0.454 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	8.95 cm
<b>Ve</b>	Effective Core Volume	4.06 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	4.00 cm <sup>2</sup>
<b>SA</b>	Surface Area	41.4 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	4.35 cm

## Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	9	MS-135014-2		MP-135014-2	HF-135014-2	FS-135014-2			
26μ	16	MS-135026-2	SH-135026-2	MP-135026-2	HF-135026-2	FS-135026-2	OC-135026-2	OD-135026-2	OE-135026-2
40μ	25	MS-135040-2				FS-135040-2			
60μ	38	MS-135060-2	SH-135060-2	MP-135060-2	HF-135060-2	FS-135060-2	OC-135060-2	OD-135060-2	OE-135060-2
75μ	47	MS-135075-2				FS-135075-2			
90μ	56	MS-135090-2				FS-135090-2	OC-135090-2	OD-135090-2	OE-135090-2
125μ	79	MS-135125-2	SH-135125-2	MP-135125-2	HF-135125-2		OC-135125-2		
147μ	93	MS-135147-2		MP-135147-2	HF-135147-2				
160μ	101	MS-135160-2		MP-135160-2	HF-135160-2				
173μ	109			MP-135173-2					
205μ	130			MP-135205-2					
<b>Approx. Unit Weight:</b>		23 g	23 g	30 g	28 g	28 g	27 g	27 g	27 g

\*OP Material is available, further details listed on website

## Test Conditions

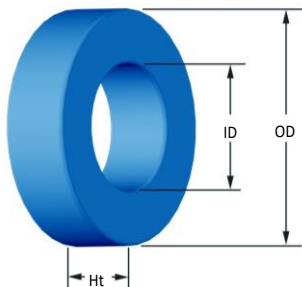
<b>Winding</b>	N=90, #22 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.18 V
<b>A<sub>L</sub> Tolerance</b>	±8%

## Coating/Packaging Information

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	441 Pcs/Box

## Winding Table

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	16	21	27	34	43	54	68	85	107	134	167
	Rdc(Ω)	1.4 m	3.0 m	6.1 m	12.2 m	24.6 m	49.1 m	98.4 m	195.6 m	391.5 m	779.8 m	1.5
<b>Full Winding</b>	Turns	21	32	50	78	120	186	288	445	689	1,066	1,651
	Rdc(Ω)	1.9 m	4.5 m	11.3 m	28.1 m	68.6 m	169.2 m	416.6 m	1.0	2.5	6.2	15.3



**Typical Part Number: MS - 141 125 - 2**

Material Type → MS  
 OD in 100th inches → 141  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) → (none)

**Physical Dimensions**

OD	Bare Core Nominal	35.81 mm	1.410 in
	Coated Core (max)	36.63 mm	1.442 in
ID	Bare Core Nominal	22.35 mm	0.880 in
	Coated Core (min)	21.54 mm	0.848 in
Ht	Bare Core Nominal	10.46 mm	0.412 in
	Coated Core (max)	11.28 mm	0.444 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.678 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	8.98 cm
<b>Ve</b>	Effective Core Volume	6.09 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	3.64 cm <sup>2</sup>
<b>SA</b>	Surface Area	45.6 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	4.84 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	13	MS-141014-2		MP-141014-2	HF-141014-2	FS-141014-2			
26μ	24	MS-141026-2	SH-141026-2	MP-141026-2	HF-141026-2	FS-141026-2	OC-141026-2	OD-141026-2	OE-141026-2
40μ	37	MS-141040-2				FS-141040-2			
60μ	56	MS-141060-2	SH-141060-2	MP-141060-2	HF-141060-2	FS-141060-2	OC-141060-2	OD-141060-2	OE-141060-2
75μ	70	MS-141075-2				FS-141075-2			
90μ	84.3	MS-141090-2				FS-141090-2	OC-141090-2	OD-141090-2	OE-141090-2
125μ	117	MS-141125-2	SH-141125-2	MP-141125-2	HF-141125-2		OC-141125-2		
147μ	138	MS-141147-2		MP-141147-2	HF-141147-2				
160μ	150	MS-141160-2		MP-141160-2	HF-141160-2				
173μ	162			MP-141173-2					
205μ	192			MP-141205-2					
<b>Approx. Unit Weight:</b>		35 g	34 g	45 g	42 g	41 g	40 g	40 g	40 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=80, #22 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.24 V
<b>A<sub>L</sub> Tolerance</b>	±8%

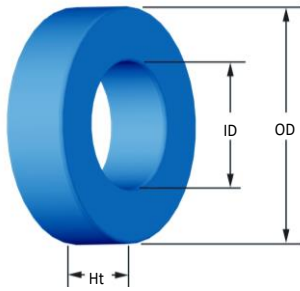
**Coating/Packaging Information**

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	343 Pcs/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	15	20	25	32	41	52	65	81	102	128	159
	Rdc(Ω)	1.5 m	3.2 m	6.3 m	12.8 m	26.1 m	52.7 m	104.7 m	207.5 m	415.6 m	829.5 m	1.6
<b>Full Winding</b>	Turns	19	30	46	71	109	169	262	406	628	972	1,505
	Rdc(Ω)	1.9 m	4.8 m	11.6 m	28.4 m	69.4 m	171.2 m	422.1 m	1.0	2.6	6.3	15.5

# 1.570 in./39.88 mm OD Toroid



**Typical Part Number: MS - 157 125 - 2**

Material Type → MS  
 OD in 100th inches → 157  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) →

## Physical Dimensions

OD	Bare Core Nominal	39.88 mm	1.570 in
	Coated Core (max)	40.69 mm	1.602 in
ID	Bare Core Nominal	24.13 mm	0.950 in
	Coated Core (min)	23.32 mm	0.918 in
Ht	Bare Core Nominal	14.48 mm	0.570 in
	Coated Core (max)	15.37 mm	0.605 in

## Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	1.07 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	9.85 cm
<b>Ve</b>	Effective Core Volume	10.5 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	4.27 cm <sup>2</sup>
<b>SA</b>	Surface Area	60.2 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	5.98 cm

## Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	19	MS-157014-2		MP-157014-2	HF-157014-2	FS-157014-2			
26μ	35	MS-157026-2	SH-157026-2	MP-157026-2	HF-157026-2	FS-157026-2	OC-157026-2	OD-157026-2	OE-157026-2
40μ	54	MS-157040-2				FS-157040-2			
60μ	81	MS-157060-2	SH-157060-2	MP-157060-2	HF-157060-2	FS-157060-2	OC-157060-2	OD-157060-2	OE-157060-2
75μ	101	MS-157075-2			HF-157075-2	FS-157075-2			
90μ	121	MS-157090-2				FS-157090-2	OC-157090-2	OD-157090-2	OE-157090-2
125μ	168	MS-157125-2	SH-157125-2	MP-157125-2	HF-157125-2		OC-157125-2		
147μ	198	MS-157147-2		MP-157147-2	HF-157147-2				
160μ	215	MS-157160-2		MP-157160-2	HF-157160-2				
173μ	233			MP-157173-2					
205μ	276			MP-157205-2					
<b>Approx. Unit Weight:</b>		61 g	59 g	79 g	72 g	72 g	70 g	70 g	70 g

\*OP Material is available, further details listed on website

## Test Conditions

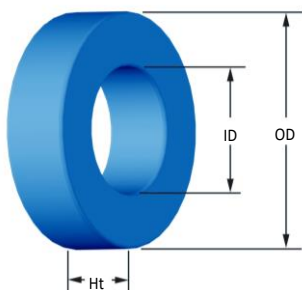
<b>Winding</b>	N=70, #20 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.33 V
<b>A<sub>L</sub> Tolerance</b>	±8%

## Coating/Packaging Information

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	216 Pcs/Box (180: MP, HF, OP)

## Winding Table

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	17	22	28	35	45	56	70	88	111	138	173
	Rdc(Ω)	2.1 m	4.3 m	8.7 m	17.3 m	35.4 m	70.0 m	139.2 m	278.3 m	558.3 m	1.1	2.2
<b>Full Winding</b>	Turns	22	35	54	83	128	199	307	476	736	1,139	1,764
	Rdc(Ω)	2.7 m	6.8 m	16.8 m	41.0 m	100.6 m	248.8 m	610.5 m	1.5	3.7	9.1	22.4



<b>Typical Part Number:</b>	<b>MS - 184 125 - 2</b>
Material Type	↑
OD in 100th inches	↑
Reference Permeability	↑
Finish	↑
Area for Special Height (in XX.Xmm)	↑

**Physical Dimensions**

OD	Bare Core Nominal	46.74 mm	1.840 in
	Coated Core (max)	47.63 mm	1.875 in
ID	Bare Core Nominal	24.13 mm	0.950 in
	Coated Core (min)	23.32 mm	0.918 in
Ht	Bare Core Nominal	18.03 mm	0.710 in
	Coated Core (max)	18.92 mm	0.745 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	1.99 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	10.743 cm
<b>Ve</b>	Effective Core Volume	21.4 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	4.27 cm <sup>2</sup>
<b>SA</b>	Surface Area	81.7 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	7.38 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	32	MS-184014-2		MP-184014-2	HF-184014-2	FS-184014-2			
26μ	59	MS-184026-2	SH-184026-2	MP-184026-2	HF-184026-2	FS-184026-2	OC-184026-2	OD-184026-2	OE-184026-2
40μ	90	MS-184040-2				FS-184040-2			
60μ	135	MS-184060-2	SH-184060-2	MP-184060-2	HF-184060-2	FS-184060-2	OC-184060-2	OD-184060-2	OE-184060-2
75μ	169	MS-184075-2				FS-184075-2			
90μ	202	MS-184090-2				FS-184090-2	OC-184090-2	OD-184090-2	OE-184090-2
125μ	281	MS-184125-2	SH-184125-2	MP-184125-2	HF-184125-2		OC-184125-2		
147μ	330	MS-184147-2		MP-184147-2	HF-184147-2				
160μ	360	MS-184160-2		MP-184160-2	HF-184160-2				
173μ	390			MP-184173-2					
205μ	462			MP-184205-2					
<b>Approx. Unit Weight:</b>		120 g	120 g	160 g	150 g	150 g	140 g	140 g	140 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=70, #20 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.62 V
<b>A<sub>L</sub> Tolerance</b>	±8%

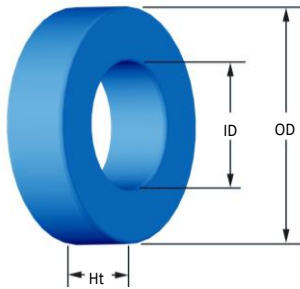
**Coating/Packaging Information**

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	100 Pcs/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	17	22	28	35	45	56	70	88	111	138	173
	Rdc(Ω)	2.6 m	5.3 m	10.7 m	21.4 m	43.7 m	86.5 m	171.9 m	343.7 m	689.5 m	1.4	2.7
<b>Full Winding</b>	Turns	22	35	54	83	128	199	307	476	736	1,139	1,764
	Rdc(Ω)	3.3 m	8.4 m	20.7 m	50.7 m	124.3 m	307.3 m	753.9 m	1.9	4.6	11.3	27.7

# 1.840 in./46.74 mm OD Toroid



**Typical Part Number:** **MS - 185 125 - 2**

Material Type → MS  
 OD in 100th inches → 185  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) → -

## Physical Dimensions

OD	Bare Core Nominal	46.74 mm	1.840 in
	Coated Core (max)	47.63 mm	1.875 in
ID	Bare Core Nominal	28.7 mm	1.130 in
	Coated Core (min)	27.89 mm	1.098 in
Ht	Bare Core Nominal	15.24 mm	0.600 in
	Coated Core (max)	16.13 mm	0.635 in

## Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	1.34 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	11.62 cm
<b>Ve</b>	Effective Core Volume	15.6 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	6.11 cm <sup>2</sup>
<b>SA</b>	Surface Area	79.6 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	6.59 cm

## Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	20	MS-185014-2		MP-185014-2	HF-185014-2	FS-185014-2			
26μ	37	MS-185026-2	SH-185026-2	MP-185026-2	HF-185026-2	FS-185026-2	OC-185026-2	OD-185026-2	OE-185026-2
40μ	57	MS-185040-2				FS-185040-2			
60μ	86	MS-185060-2	SH-185060-2	MP-185060-2	HF-185060-2	FS-185060-2	OC-185060-2	OD-185060-2	OE-185060-2
75μ	107	MS-185075-2				FS-185075-2			
90μ	128	MS-185090-2				FS-185090-2	OC-185090-2	OD-185090-2	OE-185090-2
125μ	178	MS-185125-2	SH-185125-2	MP-185125-2	HF-185125-2		OC-185125-2		
147μ	210	MS-185147-2		MP-185147-2	HF-185147-2				
160μ	228	MS-185160-2		MP-185160-2	HF-185160-2				
173μ	246			MP-185173-2					
205μ	292			MP-185205-2					
<b>Approx. Unit Weight:</b>		90 g	87 g	120 g	110 g	110 g	100 g	100 g	100 g

\*OP Material is available, further details listed on website

## Test Conditions

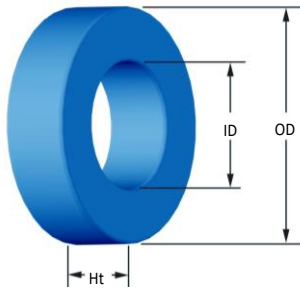
<b>Winding</b>	N=80, #20 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.48 V
<b>A<sub>L</sub> Tolerance</b>	±8%

## Coating/Packaging Information

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	125 Pcs/Box

## Winding Table

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	21	27	34	43	54	68	85	106	133	166	207
	Rdc(Ω)	2.8 m	5.8 m	11.7 m	23.5 m	46.8 m	93.8 m	186.5 m	369.9 m	738.1 m	1.5	2.9
<b>Full Winding</b>	Turns	32	49	77	119	184	284	440	680	1,053	1,630	2,523
	Rdc(Ω)	4.3 m	10.6 m	26.4 m	64.9 m	159.6 m	391.8 m	965.4 m	2.4	5.8	14.4	35.4



**Typical Part Number: MS - 200 125 - 2**

Material Type → MS  
 OD in 100th inches → 200  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) →

**Physical Dimensions**

OD	Bare Core Nominal	50.8 mm	2.000 in
	Coated Core (max)	51.69 mm	2.035 in
ID	Bare Core Nominal	31.75 mm	1.250 in
	Coated Core (min)	30.94 mm	1.218 in
Ht	Bare Core Nominal	13.46 mm	0.530 in
	Coated Core (max)	14.35 mm	0.565 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	1.25 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	12.733 cm
<b>Ve</b>	Effective Core Volume	15.9 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	7.52 cm <sup>2</sup>
<b>SA</b>	Surface Area	88.2 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	6.49 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	17	MS-200014-2		MP-200014-2	HF-200014-2	FS-200014-2			
26μ	32	MS-200026-2	SH-200026-2	MP-200026-2	HF-200026-2	FS-200026-2	OC-200026-2	OD-200026-2	OE-200026-2
40μ	49	MS-200040-2				FS-200040-2			
60μ	73	MS-200060-2	SH-200060-2	MP-200060-2	HF-200060-2	FS-200060-2	OC-200060-2	OD-200060-2	OE-200060-2
75μ	91	MS-200075-2				FS-200075-2			
90μ	109	MS-200090-2				FS-200090-2	OC-200090-2	OD-200090-2	OE-200090-2
125μ	152	MS-200125-2	SH-200125-2	MP-200125-2	HF-200125-2		OC-200125-2		
147μ	179	MS-200147-2		MP-200147-2	HF-200147-2				
160μ	195	MS-200160-2		MP-200160-2	HF-200160-2				
173μ	210			MP-200173-2					
205μ	249			MP-200205-2					
<b>Approx. Unit Weight:</b>		92 g	89 g	120 g	110 g	110 g	110 g	110 g	110 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=70, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.39 V
<b>A<sub>L</sub> Tolerance</b>	±8%

**Coating/Packaging Information**

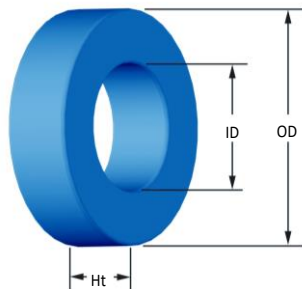
<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	125 Pcs/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	23	30	38	48	60	75	94	118	148	184	230
	Rdc(Ω)	3.1 m	6.4 m	12.8 m	25.8 m	51.2 m	101.9 m	203.0 m	405.4 m	808.6 m	1.6	3.2
<b>Full Winding</b>	Turns	39	61	94	146	226	350	541	837	1,296	2,006	3,104
	Rdc(Ω)	5.2 m	12.9 m	31.7 m	78.4 m	193.0 m	475.3 m	1.2	2.9	7.1	17.4	42.9



# 2.250 in./57.15 mm OD Toroid



**Typical Part Number:** **MS - 225 125 - 2**

Material Type → MS  
 OD in 100th inches → 225  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) →

### Physical Dimensions

OD	Bare Core Nominal	57.15 mm	2.250 in
	Coated Core (max)	58.04 mm	2.285 in
ID	Bare Core Nominal	35.56 mm	1.400 in
	Coated Core (min)	34.75 mm	1.368 in
Ht	Bare Core Nominal	13.97 mm	0.550 in
	Coated Core (max)	14.86 mm	0.585 in

### Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	1.44 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	14.296 cm
<b>Ve</b>	Effective Core Volume	20.7 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	9.48 cm <sup>2</sup>
<b>SA</b>	Surface Area	109 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	7.04 cm

### Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	18	MS-225014-2		MP-225014-2	HF-225014-2	FS-225014-2			
26μ	33	MS-225026-2	SH-225026-2	MP-225026-2	HF-225026-2	FS-225026-2	OC-225026-2	OD-225026-2	OE-225026-2
40μ	50	MS-225040-2				FS-225040-2			
60μ	75	MS-225060-2	SH-225060-2	MP-225060-2	HF-225060-2	FS-225060-2	OC-225060-2	OD-225060-2	OE-225060-2
75μ	94	MS-225075-2				FS-225075-2			
90μ	112	MS-225090-2				FS-225090-2	OC-225090-2	OD-225090-2	OE-225090-2
125μ	156	MS-225125-2	SH-225125-2	MP-225125-2	HF-225125-2		OC-225125-2		
147μ	185	MS-225147-2		MP-225147-2	HF-225147-2				
160μ	200	MS-225160-2		MP-225160-2	HF-225160-2				
173μ	218			MP-225173-2					
205μ	259			MP-225205-2					
<b>Approx. Unit Weight:</b>		120 g	120 g	150 g	140 g	140 g	140 g	140 g	140 g

\*OP Material is available, further details listed on website

### Test Conditions

<b>Winding</b>	N=80, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.51 V
<b>A<sub>L</sub> Tolerance</b>	±8%

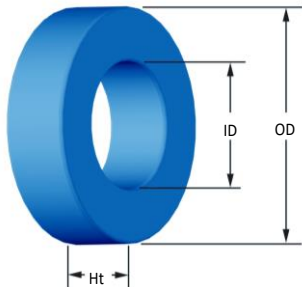
### Coating/Packaging Information

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	80 Pcs/Box

### Winding Table

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	27	34	43	54	68	85	106	133	166	207	259
	Rdc(Ω)	3.9 m	7.8 m	15.7 m	31.4 m	63.0 m	125.2 m	248.2 m	495.3 m	983.2 m	1.9	3.9
<b>Full Winding</b>	Turns	50	77	119	184	285	441	682	1,056	1,635	2,530	3,916
	Rdc(Ω)	7.2 m	17.7 m	43.6 m	107.1 m	263.9 m	649.4 m	1.6	3.9	9.7	23.8	58.7





**Typical Part Number:** **MS - 226 125 - 2**

Material Type → MS  
 OD in 100th inches → 226  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) →

**Physical Dimensions**

OD	Bare Core Nominal	57.15 mm	2.250 in
	Coated Core (max)	58.04 mm	2.285 in
ID	Bare Core Nominal	26.39 mm	1.039 in
	Coated Core (min)	25.58 mm	1.007 in
Ht	Bare Core Nominal	15.24 mm	0.600 in
	Coated Core (max)	16.13 mm	0.635 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	2.29 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	12.506 cm
<b>Ve</b>	Effective Core Volume	28.6 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	5.14 cm <sup>2</sup>
<b>SA</b>	Surface Area	105 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	7.75 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	32	MS-226014-2		MP-226014-2	HF-226014-2	FS-226014-2			
26μ	60	MS-226026-2	SH-226026-2	MP-226026-2	HF-226026-2	FS-226026-2	OC-226026-2	OD-226026-2	OE-226026-2
40μ	92	MS-226040-2				FS-226040-2			
60μ	138	MS-226060-2	SH-226060-2	MP-226060-2	HF-226060-2	FS-226060-2	OC-226060-2	OD-226060-2	OE-226060-2
75μ	172	MS-226075-2				FS-226075-2			
90μ	207	MS-226090-2				FS-226090-2	OC-226090-2	OD-226090-2	OE-226090-2
125μ	287	MS-226125-2	SH-226125-2	MP-226125-2	HF-226125-2		OC-226125-2		
147μ	338	MS-226147-2		MP-226147-2	HF-226147-2				
160μ	368	MS-226160-2		MP-226160-2	HF-226160-2				
173μ	398			MP-226173-2					
205μ	460			MP-226205-2					
<b>Approx. Unit Weight:</b>		170 g	160 g	210 g	200 g	190 g	190 g	190 g	190 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=60, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.61 V
<b>A<sub>L</sub> Tolerance</b>	±8%

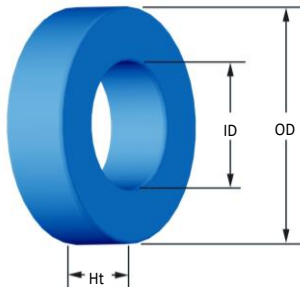
**Coating/Packaging Information**

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	80 Pcs/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	19	24	31	39	49	62	78	97	122	152	190
	Rdc(Ω)	3.0 m	6.1 m	12.5 m	25.0 m	50.0 m	100.5 m	201.2 m	397.8 m	795.8 m	1.6	3.1
<b>Full Winding</b>	Turns	27	42	64	100	154	239	370	572	886	1,371	2,122
	Rdc(Ω)	4.3 m	10.6 m	25.8 m	64.1 m	157.0 m	387.5 m	954.2 m	2.3	5.8	14.2	35.0

# 2.250 in./57.15 mm OD Toroid



**Typical Part Number:** **MS - 226 125 - 2 H305**

Material Type \_\_\_\_\_  
 OD in 100th inches \_\_\_\_\_  
 Reference Permeability \_\_\_\_\_  
 Finish \_\_\_\_\_  
 Special Height (in XX.Xmm) \_\_\_\_\_

### Physical Dimensions

OD	Bare Core Nominal	57.15 mm	2.250 in
	Coated Core (max)	58.04 mm	2.285 in
ID	Bare Core Nominal	26.39 mm	1.039 in
	Coated Core (min)	25.58 mm	1.007 in
Ht	Bare Core Nominal	30.48 mm	1.200 in
	Coated Core (max)	31.37 mm	1.235 in

### Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	4.57 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	12.506 cm
<b>Ve</b>	Effective Core Volume	57.2 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	5.14 cm <sup>2</sup>
<b>SA</b>	Surface Area	136 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	10.8 cm

### Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	64	MS-226014-2H305		MP-226014-2H305	HF-226014-2H305	FS-226014-2H305			
26μ	120	MS-226026-2H305	SH-226026-2H305	MP-226026-2H305	HF-226026-2H305	FS-226026-2H305	OC-226026-2H305	OD-226026-2H305	OE-226026-2H305
40μ	184	MS-226040-2H305				FS-226040-2H305			
60μ	276	MS-226060-2H305	SH-226060-2H305	MP-226060-2H305	HF-226060-2H305	FS-226060-2H305	OC-226060-2H305	OD-226060-2H305	OE-226060-2H305
75μ	344	MS-226075-2H305				FS-226075-2H305			
90μ	414	MS-226090-2H305				FS-226090-2H305	OC-226090-2H305	OD-226090-2H305	OE-226090-2H305
125μ	574	MS-226125-2H305	SH-226125-2H305	MP-226125-2H305	HF-226125-2H305		OC-226125-2H305		
147μ	676	MS-226147-2H305		MP-226147-2H305	HF-226147-2H305				
160μ	736	MS-226160-2H305		MP-226160-2H305	HF-226160-2H305				
173μ	796			MP-226173-2H305					
205μ	920			MP-226205-2H305					
<b>Approx. Unit Weight:</b>		330 g	320 g	430 g	390 g	390 g	380 g	380 g	380 g

\*OP Material is available, further details listed on website

### Test Conditions

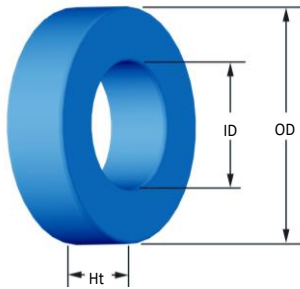
<b>Winding</b>	N=60, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	1.2 V
<b>A<sub>L</sub> Tolerance</b>	±8%

### Coating/Packaging Information

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	32 Pcs/Box

### Winding Table

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	19	24	31	39	49	62	78	97	122	152	190
	Rdc(Ω)	4.2 m	8.5 m	17.4 m	34.8 m	69.6 m	140.1 m	280.3 m	554.3 m	1.1	2.2	4.4
<b>Full Winding</b>	Turns	27	42	64	100	154	239	370	572	886	1,371	2,122
	Rdc(Ω)	6.0 m	14.8 m	35.9 m	89.3 m	218.8 m	539.9 m	1.3	3.3	8.1	19.8	48.8



**Typical Part Number: MS - 250 125 - 2**

Material Type → MS  
 OD in 100th inches → 250  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) → (none shown)

**Physical Dimensions**

OD	Bare Core Nominal	63.5 mm	2.500 in
	Coated Core (max)	64.77 mm	2.550 in
ID	Bare Core Nominal	31.37 mm	1.235 in
	Coated Core (min)	30.48 mm	1.200 in
Ht	Bare Core Nominal	25 mm	0.984 in
	Coated Core (max)	25.9 mm	1.020 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	3.89 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	14.314 cm
<b>Ve</b>	Effective Core Volume	55.8 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	7.30 cm <sup>2</sup>
<b>SA</b>	Surface Area	150 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	10.1 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	48	MS-250014-2		MP-250014-2	HF-250014-2	FS-250014-2			
26μ	89	MS-250026-2	SH-250026-2	MP-250026-2	HF-250026-2	FS-250026-2	OC-250026-2	OD-250026-2	OE-250026-2
40μ	137	MS-250040-2				FS-250040-2			
60μ	206	MS-250060-2	SH-250060-2	MP-250060-2	HF-250060-2	FS-250060-2	OC-250060-2	OD-250060-2	OE-250060-2
75μ	258	MS-250075-2				FS-250075-2			
90μ	310	MS-250090-2				FS-250090-2	OC-250090-2	OD-250090-2	OE-250090-2
125μ	430	MS-250125-2	SH-250125-2	MP-250125-2	HF-250125-2		OC-250125-2		
147μ	506	MS-250147-2		MP-250147-2	HF-250147-2				
160μ	550	MS-250160-2		MP-250160-2	HF-250160-2				
173μ	595			MP-250173-2					
205μ	705			MP-250205-2					
<b>Approx. Unit Weight:</b>		320 g	310 g	420 g	380 g	380 g	370 g	370 g	370 g

\*OP Material is available, further details listed on website

**Test Conditions**

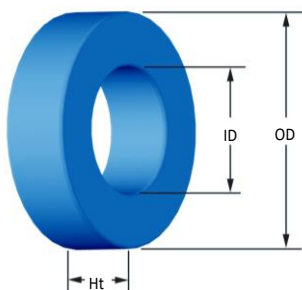
<b>Winding</b>	N=100, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	1.7 V
<b>A<sub>L</sub> Tolerance</b>	±8%

**Coating/Packaging Information**

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	27 Pcs/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	23	29	37	47	59	74	93	116	145	182	227
	Rdc(Ω)	4.8 m	9.6 m	19.5 m	39.4 m	78.6 m	156.9 m	313.5 m	622.0 m	1.2	2.5	4.9
<b>Full Winding</b>	Turns	38	59	91	142	219	339	525	813	1,258	1,947	3,013
	Rdc(Ω)	7.9 m	19.6 m	48.0 m	119.0 m	291.9 m	718.6 m	1.8	4.4	10.7	26.4	65.0



**Typical Part Number: MS - 292 125 - 2**

Material Type → MS  
 OD in 100th inches → 292  
 Reference Permeability → 125  
 Finish → -  
 Area for Special Height (in XX.Xmm) → 2

**Physical Dimensions**

OD	Bare Core Nominal	74.1 mm	2.917 in
	Coated Core (max)	75.2 mm	2.961 in
ID	Bare Core Nominal	45.3 mm	1.783 in
	Coated Core (min)	44.1 mm	1.736 in
Ht	Bare Core Nominal	35 mm	1.378 in
	Coated Core (max)	36.2 mm	1.425 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	4.94 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	18.4 cm
<b>Ve</b>	Effective Core Volume	90.9 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	15.3 cm <sup>2</sup>
<b>SA</b>	Surface Area	228 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	12.6 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	48	MS-292014-2		MP-292014-2	HF-292014-2	FS-292014-2			
26μ	89	MS-292026-2	SH-292026-2	MP-292026-2	HF-292026-2	FS-292026-2	OC-292026-2	OD-292026-2	OE-292026-2
40μ	137	MS-292040-2				FS-292040-2			
60μ	206	MS-292060-2	SH-292060-2	MP-292060-2	HF-292060-2	FS-292060-2	OC-292060-2	OD-292060-2	OE-292060-2
75μ	257	MS-292075-2				FS-292075-2			
90μ	309	MS-292090-2				FS-292090-2	OC-292090-2	OD-292090-2	OE-292090-2
125μ	429	MS-292125-2	SH-292125-2	MP-292125-2	HF-292125-2		OC-292125-2		
147μ	505	MS-292147-2							
160μ	549	MS-292160-2							
173μ	N/A								
205μ	N/A								
<b>Approx. Unit Weight:</b>		530 g	510 g	680 g	620 g	620 g	600 g	600 g	600 g

\*OP Material is available, further details listed on website

**Test Conditions**

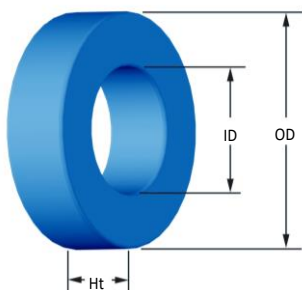
<b>Winding</b>	N=100, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	2.2 V
<b>A<sub>L</sub> Tolerance</b>	±8%

**Coating/Packaging Information**

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	18 Pcs/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	35	44	55	69	87	109	136	170	212	264	329
	Rdc(Ω)	9.0 m	18.1 m	35.9 m	71.7 m	143.7 m	286.3 m	568.1 m	1.1	2.2	4.4	8.8
<b>Full Winding</b>	Turns	80	124	192	296	459	710	1,099	1,701	2,633	4,075	6,307
	Rdc(Ω)	20.7 m	50.9 m	125.4 m	307.4 m	758.0 m	1.9	4.6	11.3	27.8	68.5	168.5



<b>Typical Part Number:</b>	<b>MS - 300 125 - 2</b>
Material Type	↑
OD in 100th inches	↑
Reference Permeability	↑
Finish	↑
Area for Special Height (in XX.Xmm)	↑

**Physical Dimensions**

OD	Bare Core Nominal	77.8 mm	3.063 in
	Coated Core (max)	78.94 mm	3.108 in
ID	Bare Core Nominal	49.23 mm	1.938 in
	Coated Core (min)	47.96 mm	1.888 in
Ht	Bare Core Nominal	12.7 mm	0.500 in
	Coated Core (max)	13.97 mm	0.550 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	1.77 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	19.612 cm
<b>Ve</b>	Effective Core Volume	34.8 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	18.1 cm <sup>2</sup>
<b>SA</b>	Surface Area	184 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	8.29 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	16	MS-300014-2		MP-300014-2	HF-300014-2	FS-300014-2			
26μ	30	MS-300026-2	SH-300026-2	MP-300026-2	HF-300026-2	FS-300026-2	OC-300026-2	OD-300026-2	OE-300026-2
40μ	45	MS-300040-2				FS-300040-2			
60μ	68	MS-300060-2	SH-300060-2	MP-300060-2	HF-300060-2	FS-300060-2	OC-300060-2	OD-300060-2	OE-300060-2
75μ	85	MS-300075-2				FS-300075-2			
90μ	102	MS-300090-2				FS-300090-2	OC-300090-2	OD-300090-2	OE-300090-2
125μ	142	MS-300125-2	SH-300125-2	MP-300125-2	HF-300125-2		OC-300125-2		
147μ	167	MS-300147-2		MP-300147-2	HF-300147-2				
160μ	182	MS-300160-2		MP-300160-2	HF-300160-2				
173μ	197			MP-300173-2					
205μ	233			MP-300205-2					
<b>Approx. Unit Weight:</b>		200 g	190 g	260 g	240 g	240 g	230 g	230 g	230 g

\*OP Material is available, further details listed on website

**Test Conditions**

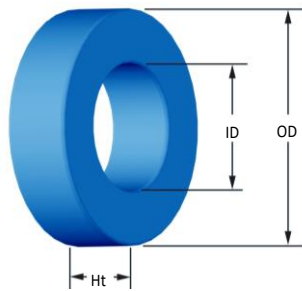
<b>Winding</b>	N=120, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.94 V
<b>A<sub>L</sub> Tolerance</b>	±8%

**Coating/Packaging Information**

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	45 Pcs/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	38	48	60	75	95	118	148	185	230	287	358
	Rdc(Ω)	6.5 m	13.0 m	25.9 m	51.4 m	103.6 m	204.6 m	408.2 m	811.5 m	1.6	3.2	6.3
<b>Full Winding</b>	Turns	95	146	227	351	543	840	1,300	2,012	3,114	4,820	7,459
	Rdc(Ω)	16.2 m	39.6 m	97.9 m	240.7 m	592.1 m	1.5	3.6	8.8	21.7	53.5	131.6



**Typical Part Number: MS - 301 125 - 2**

Material Type → MS  
 OD in 100th inches → 301  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) →

**Physical Dimensions**

OD	Bare Core Nominal		Coated Core (max)	
		77.8 mm	3.063 in	78.94 mm
ID	Bare Core Nominal		Coated Core (min)	
		49.23 mm	1.938 in	47.96 mm
Ht	Bare Core Nominal		Coated Core (max)	
		15.88 mm	0.625 in	17.15 mm

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	2.22 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	19.612 cm
<b>Ve</b>	Effective Core Volume	43.5 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	18.1 cm <sup>2</sup>
<b>SA</b>	Surface Area	193 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	8.93 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	19.9	MS-301014-2		MP-301014-2	HF-301014-2	FS-301014-2			
26μ	37	MS-301026-2	SH-301026-2	MP-301026-2	HF-301026-2	FS-301026-2	OC-301026-2	OD-301026-2	OE-301026-2
40μ	57	MS-301040-2				FS-301040-2			
60μ	85	MS-301060-2	SH-301060-2	MP-301060-2	HF-301060-2	FS-301060-2	OC-301060-2	OD-301060-2	OE-301060-2
75μ	107	MS-301075-2				FS-301075-2			
90μ	128	MS-301090-2				FS-301090-2	OC-301090-2	OD-301090-2	OE-301090-2
125μ	178	MS-301125-2	SH-301125-2	MP-301125-2	HF-301125-2		OC-301125-2		
147μ	209	MS-301147-2		MP-301147-2	HF-301147-2				
160μ	228	MS-301160-2		MP-301160-2	HF-301160-2				
173μ	246			MP-301173-2					
205μ	284			MP-301205-2					
<b>Approx. Unit Weight:</b>		250 g	240 g	320 g	300 g	300 g	290 g	290 g	290 g

\*OP Material is available, further details listed on website

**Test Conditions**

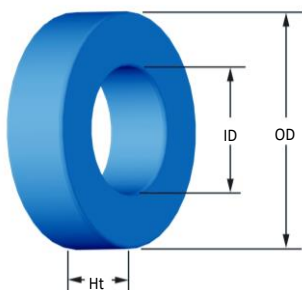
<b>Winding</b>	N=120, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	1.2 V
<b>A<sub>L</sub> Tolerance</b>	±8%

**Coating/Packaging Information**

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	36 Pcs/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
		mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400
<b>Single Layer</b>	Turns	38	48	60	75	95	118	148	185	230	287	358
	Rdc(Ω)	7.0 m	14.0 m	27.9 m	55.4 m	111.5 m	220.3 m	439.5 m	873.8 m	1.7	3.4	6.8
<b>Full Winding</b>	Turns	95	146	227	351	543	840	1,300	2,012	3,114	4,820	7,459
	Rdc(Ω)	17.4 m	42.6 m	105.4 m	259.1 m	637.6 m	1.6	3.9	9.5	23.4	57.6	141.7



<b>Typical Part Number:</b>	<b>MS - 350 125 - 2</b>
Material Type	↑
OD in 100th inches	↑
Reference Permeability	↑
Finish	↑
Area for Special Height (in XX.Xmm)	↑

**Physical Dimensions**

OD	Bare Core Nominal		Coated Core (max)	
		88.85 mm	3.498 in	90 mm
ID	Bare Core Nominal		Coated Core (min)	
		66.01 mm	2.599 in	64.74 mm
Ht	Bare Core Nominal		Coated Core (max)	
		15.93 mm	0.627 in	17.2 mm

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	1.83 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	24 cm
<b>Ve</b>	Effective Core Volume	43.9 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	32.9 cm <sup>2</sup>
<b>SA</b>	Surface Area	251 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	9.20 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	13	MS-350014-2		MP-350014-2	HF-350014-2	FS-350014-2			
26μ	24	MS-350026-2	SH-350026-2	MP-350026-2	HF-350026-2	FS-350026-2	OC-350026-2	OD-350026-2	OE-350026-2
40μ	38	MS-350040-2				FS-350040-2			
60μ	57	MS-350060-2	SH-350060-2	MP-350060-2	HF-350060-2	FS-350060-2	OC-350060-2	OD-350060-2	OE-350060-2
75μ	72	MS-350075-2				FS-350075-2			
90μ	86	MS-350090-2				FS-350090-2	OC-350090-2	OD-350090-2	OE-350090-2
125μ	120	MS-350125-2	SH-350125-2	MP-350125-2	HF-350125-2		OC-350125-2		
147μ	141	MS-350147-2		MP-350147-2	HF-350147-2				
160μ	153	MS-350160-2		MP-350160-2	HF-350160-2				
173μ	166			MP-350173-2					
205μ	196			MP-350205-2					
<b>Approx. Unit Weight:</b>		250 g	250 g	330 g	300 g	300 g	290 g	290 g	290 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=100, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.81 V
<b>A<sub>L</sub> Tolerance</b>	±8%

**Coating/Packaging Information**

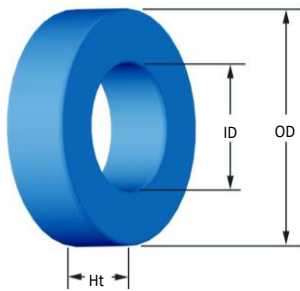
<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	45 Pcs/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	52	65	82	103	129	161	201	250	312	389	485
	Rdc(Ω)	9.8 m	19.6 m	39.2 m	78.4 m	156.2 m	310.0 m	615.5 m	1.2	2.4	4.8	9.5
<b>Full Winding</b>	Turns	172	267	413	639	989	1,530	2,369	3,666	5,674	8,782	13,592
	Rdc(Ω)	32.5 m	80.4 m	197.7 m	486.4 m	1.2	2.9	7.3	17.9	43.9	108.2	266.3



# 4.000 in./101.6 mm OD Toroid



**Typical Part Number:** **MS - 400 125 - 2**

Material Type \_\_\_\_\_  
 OD in 100th inches \_\_\_\_\_  
 Reference Permeability \_\_\_\_\_  
 Finish \_\_\_\_\_  
 Area for Special Height (in XX.Xmm) \_\_\_\_\_

## Physical Dimensions

OD	Bare Core Nominal	101.6 mm	4.000 in
	Coated Core (max)	102.87 mm	4.050 in
ID	Bare Core Nominal	57.15 mm	2.250 in
	Coated Core (min)	55.75 mm	2.195 in
Ht	Bare Core Nominal	16.51 mm	0.650 in
	Coated Core (max)	17.78 mm	0.700 in

## Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	3.52 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	24.271 cm
<b>Ve</b>	Effective Core Volume	85.5 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	24.4 cm <sup>2</sup>
<b>SA</b>	Surface Area	303 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	11.1 cm

## Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	25.6	MS-400014-2		MP-400014-2	HF-400014-2	FS-400014-2			
26μ	47.4	MS-400026-2	SH-400026-2	MP-400026-2	HF-400026-2	FS-400026-2	OC-400026-2	OD-400026-2	OE-400026-2
40μ	75	MS-400040-2				FS-400040-2			
60μ	112	MS-400060-2	SH-400060-2	MP-400060-2	HF-400060-2	FS-400060-2	OC-400060-2	OD-400060-2	OE-400060-2
75μ	137	MS-400075-2				FS-400075-2			
90μ	164	MS-400090-2				FS-400090-2	OC-400090-2	OD-400090-2	OE-400090-2
125μ	228	MS-400125-2	SH-400125-2	MP-400125-2	HF-400125-2		OC-400125-2		
147μ	268	MS-400147-2		MP-400147-2	HF-400147-2				
160μ	282	MS-400160-2		MP-400160-2					
173μ	316			MP-400173-2					
205μ	N/A								
<b>Approx. Unit Weight:</b>		490 g	480 g	640 g	590 g	580 g	570 g	570 g	570 g

\*OP Material is available, further details listed on website

## Test Conditions

<b>Winding</b>	N=140, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	2.2 V
<b>A<sub>L</sub> Tolerance</b>	±8%

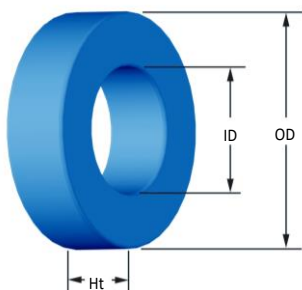
## Coating/Packaging Information

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	16 Pcs/Box

## Winding Table

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	44	56	70	88	110	138	172	215	268	335	417
	Rdc(Ω)	10.0 m	20.2 m	40.2 m	80.5 m	160.0 m	319.2 m	632.7 m	1.3	2.5	5.0	9.8
<b>Full Winding</b>	Turns	128	198	306	474	733	1,135	1,756	2,719	4,208	6,512	10,079
	Rdc(Ω)	29.1 m	71.6 m	175.9 m	433.4 m	1.1	2.6	6.5	15.9	39.1	96.4	237.2





<b>Typical Part Number:</b>	<b>MS - 401 125 - 2</b>
Material Type	↑
OD in 100th inches	↑
Reference Permeability	↑
Finish	↑
Area for Special Height (in XX.Xmm)	↑

**Physical Dimensions**

OD	Bare Core Nominal	101.6 mm	4.000 in
	Coated Core (max)	102.87 mm	4.050 in
ID	Bare Core Nominal	57.15 mm	2.250 in
	Coated Core (min)	55.75 mm	2.195 in
Ht	Bare Core Nominal	13.59 mm	0.535 in
	Coated Core (max)	14.86 mm	0.585 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	2.97 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	24.271 cm
<b>Ve</b>	Effective Core Volume	72.1 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	24.4 cm <sup>2</sup>
<b>SA</b>	Surface Area	293 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	10.5 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	21.5	MS-401014-2		MP-401014-2	HF-401014-2	FS-401014-2			
26μ	40	MS-401026-2	SH-401026-2	MP-401026-2	HF-401026-2	FS-401026-2	OC-401026-2	OD-401026-2	OE-401026-2
40μ	62	MS-401040-2				FS-401040-2			
60μ	92.3	MS-401060-2	SH-401060-2	MP-401060-2	HF-401060-2	FS-401060-2	OC-401060-2	OD-401060-2	OE-401060-2
75μ	115	MS-401075-2				FS-401075-2			
90μ	139	MS-401090-2				FS-401090-2	OC-401090-2	OD-401090-2	OE-401090-2
125μ	192	MS-401125-2	SH-401125-2	MP-401125-2	HF-401125-2		OC-401125-2		
147μ	226	MS-401147-2		MP-401147-2	HF-401147-2				
160μ	246	MS-401160-2		MP-401160-2					
173μ	266			MP-401173-2					
205μ	N/A								
<b>Approx. Unit Weight:</b>		420 g	400 g	540 g	500 g	490 g	480 g	480 g	480 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=140, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	1.8 V
<b>A<sub>L</sub> Tolerance</b>	±8%

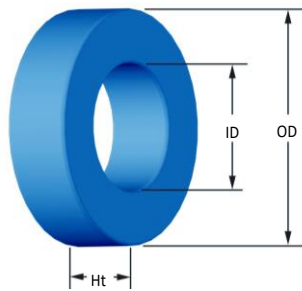
**Coating/Packaging Information**

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	16 Pcs/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	44	56	70	88	110	138	172	215	268	335	417
	Rdc(Ω)	9.5 m	19.2 m	38.1 m	76.2 m	151.5 m	302.3 m	599.2 m	1.2	2.4	4.7	9.3
<b>Full Winding</b>	Turns	128	198	306	474	733	1,135	1,756	2,719	4,208	6,512	10,079
	Rdc(Ω)	27.6 m	67.8 m	166.6 m	410.5 m	1.0	2.5	6.1	15.1	37.1	91.3	224.6

# 5.218 in./132.54 mm OD Toroid



**Typical Part Number:** **MS - 520 125 - 2**

Material Type → MS  
 OD in 100th inches → 520  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) →

### Physical Dimensions

OD	Bare Core Nominal		Coated Core (max)	
		132.54 mm	5.218 in	134.21 mm
ID	Bare Core Nominal		Coated Core (min)	
		78.59 mm	3.094 in	77.04 mm
Ht	Bare Core Nominal		Coated Core (max)	
		20.32 mm	0.800 in	21.72 mm

### Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	5.35 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	32.429 cm
<b>Ve</b>	Effective Core Volume	173 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	46.6 cm <sup>2</sup>
<b>SA</b>	Surface Area	515 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	13.9 cm

### Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	26	MS-520014-2		MP-520014-2	HF-520014-2	FS-520014-2			
26μ	54	MS-520026-2		MP-520026-2	HF-520026-2	FS-520026-2	OC-520026-2	OD-520026-2	OE-520026-2
40μ	83	MS-520040-2				FS-520040-2			
60μ	124	MS-520060-2		MP-520060-2	HF-520060-2	FS-520060-2	OC-520060-2	OD-520060-2	OE-520060-2
75μ	155	MS-520075-2				FS-520075-2			
90μ	187	MS-520090-2							
125μ	259	MS-520125-2		MP-520125-2	HF-520125-2				
147μ	304			MP-520147-2	HF-520147-2				
160μ	332			MP-520160-2					
173μ	358			MP-520173-2					
205μ	N/A								
<b>Approx. Unit Weight:</b>		1,000 g	970 g	1,290 g	1,190 g	1,180 g	1,150 g	1,150 g	1,150 g

\*OP Material is available, further details listed on website

### Test Conditions

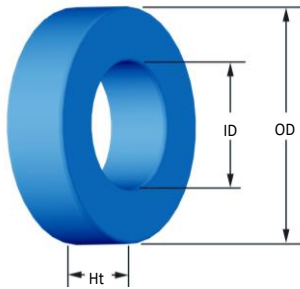
<b>Winding</b>	N=200, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	4.7 V
<b>A<sub>L</sub> Tolerance</b>	±8%

### Coating/Packaging Information

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	4 Pcs/Box

### Winding Table

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	62	78	98	123	154	192	239	298	372	463	577
	Rdc(Ω)	17.7 m	35.5 m	70.9 m	141.5 m	281.8 m	558.8 m	1.1	2.2	4.4	8.6	17.1
<b>Full Winding</b>	Turns	244	378	584	905	1,400	2,167	3,354	5,191	8,035	12,436	19,248
	Rdc(Ω)	69.8 m	172.0 m	422.6 m	1.0	2.6	6.3	15.5	38.2	94.1	231.6	570.0



**Typical Part Number:** **MS - 521 125 - 2**

Material Type → MS  
 OD in 100th inches → 521  
 Reference Permeability → 125  
 Finish → -  
 Area for Special Height (in XX.Xmm) → 2

**Physical Dimensions**

OD	Bare Core Nominal	132.54 mm	5.218 in
	Coated Core (max)	134.21 mm	5.284 in
ID	Bare Core Nominal	78.59 mm	3.094 in
	Coated Core (min)	77.04 mm	3.033 in
Ht	Bare Core Nominal	25.4 mm	1.000 in
	Coated Core (max)	26.8 mm	1.055 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	6.71 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	32.429 cm
<b>Ve</b>	Effective Core Volume	218 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	46.6 cm <sup>2</sup>
<b>SA</b>	Surface Area	540 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	14.9 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	36.4	MS-521014-2		MP-521014-2	HF-521014-2	FS-521014-2			
26μ	67.6	MS-521026-2		MP-521026-2	HF-521026-2	FS-521026-2	OC-521026-2	OD-521026-2	OE-521026-2
40μ	104	MS-521040-2				FS-521040-2			
60μ	156	MS-521060-2		MP-521060-2	HF-521060-2	FS-521060-2	OC-521060-2	OD-521060-2	OE-521060-2
75μ	195	MS-521075-2				FS-521075-2			
90μ	234	MS-521090-2							
125μ	325	MS-521125-2		MP-521125-2	HF-521125-2				
147μ	382			MP-521147-2	HF-521147-2				
160μ	416			MP-521160-2					
173μ	450			MP-521173-2					
205μ	N/A								
<b>Approx. Unit Weight:</b>		1,260 g	1,220 g	1,620 g	1,490 g	1,480 g	1,440 g	1,440 g	1,440 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=200, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	6.0 V
<b>A<sub>L</sub> Tolerance</b>	±8%

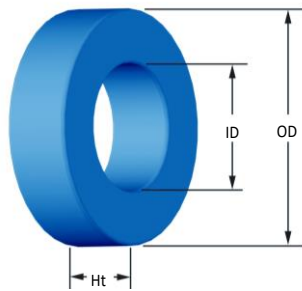
**Coating/Packaging Information**

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	4 Pcs/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	62	78	98	123	154	192	239	298	372	463	577
	Rdc(Ω)	19.0 m	38.1 m	76.1 m	151.9 m	302.4 m	599.6 m	1.2	2.4	4.7	9.3	18.3
<b>Full Winding</b>	Turns	244	378	584	905	1,400	2,167	3,354	5,191	8,035	12,436	19,248
	Rdc(Ω)	74.9 m	184.5 m	453.4 m	1.1	2.7	6.8	16.7	41.0	100.9	248.5	611.6

# 6.000 in./152.4 mm OD Toroid



**Typical Part Number:** **MS - 600 125 - 2**

Material Type → MS  
 OD in 100th inches → 600  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) →

## Physical Dimensions

OD	Bare Core Nominal		Coated Core (max)	
	mm	in	mm	in
ID	Bare Core Nominal		Coated Core (min)	
	81.28 mm	3.200 in	79.65 mm	3.136 in
Ht	Bare Core Nominal		Coated Core (max)	
	20.32 mm	0.800 in	21.72 mm	0.855 in

## Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	7.05 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	35.97 cm
<b>Ve</b>	Effective Core Volume	253 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	49.8 cm <sup>2</sup>
<b>SA</b>	Surface Area	646 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	15.8 cm

## Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	35.3	MS-600014-2		MP-600014-2	HF-600014-2	FS-600014-2			
26μ	66	MS-600026-2		MP-600026-2	HF-600026-2	FS-600026-2	OC-600026-2	OD-600026-2	OE-600026-2
40μ	102	MS-600040-2				FS-600040-2			
60μ	152.5	MS-600060-2		MP-600060-2	HF-600060-2	FS-600060-2			
75μ	190.5	MS-600075-2				FS-600075-2			
90μ	229	MS-600090-2							
125μ	318	MS-600125-2		MP-600125-2	HF-600125-2				
147μ	374			MP-600147-2	HF-600147-2				
160μ	407			MP-600160-2					
173μ	440			MP-600173-2					
205μ	N/A								
<b>Approx. Unit Weight:</b>		1,460 g	1,420 g	1,890 g	1,740 g	1,720 g	1,680 g	1,680 g	1,680 g

\*OP Material is available, further details listed on website

## Test Conditions

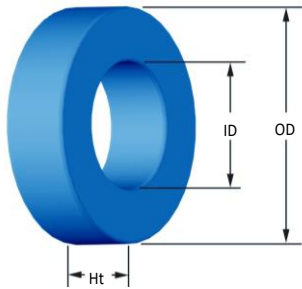
<b>Winding</b>	N=200, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	6.3 V
<b>A<sub>L</sub> Tolerance</b>	±8%

## Coating/Packaging Information

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	4 Pcs/Box

## Winding Table

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	65	81	102	127	159	198	247	309	385	479	597
	Rdc(Ω)	21.1 m	41.7 m	83.6 m	165.5 m	329.4 m	652.5 m	1.3	2.6	5.1	10.1	20.0
<b>Full Winding</b>	Turns	261	404	625	967	1,497	2,316	3,585	5,549	8,589	13,293	20,574
	Rdc(Ω)	84.5 m	208.1 m	512.0 m	1.3	3.1	7.6	18.8	46.2	113.9	280.2	689.8



<b>Typical Part Number:</b>	<b>MS - 601 125 - 2</b>
Material Type	↑
OD in 100th inches	↑
Reference Permeability	↑
Finish	↑
Area for Special Height (in XX.Xmm)	↑

**Physical Dimensions**

OD	Bare Core Nominal		Coated Core (max)	
	mm	in	mm	in
ID	Bare Core Nominal		Coated Core (min)	
	81.28 mm	3.200 in	79.65 mm	3.136 in
Ht	Bare Core Nominal		Coated Core (max)	
	25.4 mm	1.000 in	26.8 mm	1.055 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	8.81 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	35.97 cm
<b>Ve</b>	Effective Core Volume	317 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	49.8 cm <sup>2</sup>
<b>SA</b>	Surface Area	674 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	16.8 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	44.5	MS-601014-2		MP-601014-2	HF-601014-2	FS-601014-2			
26μ	82.5	MS-601026-2		MP-601026-2	HF-601026-2	FS-601026-2	OC-601026-2	OD-601026-2	OE-601026-2
40μ	127	MS-601040-2				FS-601040-2			
60μ	190.5	MS-601060-2		MP-601060-2	HF-601060-2	FS-601060-2			
75μ	238	MS-601075-2				FS-601075-2			
90μ	286	MS-601090-2							
125μ	397	MS-601125-2		MP-601125-2	HF-601125-2				
147μ	466.5			MP-601147-2	HF-601147-2				
160μ	508			MP-601160-2					
173μ	549			MP-601173-2					
205μ	N/A								
<b>Approx. Unit Weight:</b>		1,830 g	1,770 g	2,360 g	2,180 g	2,150 g	2,100 g	2,100 g	2,100 g

\*OP Material is available, further details listed on website

**Test Conditions**

<b>Winding</b>	N=200, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	7.8 V
<b>A<sub>L</sub> Tolerance</b>	±8%

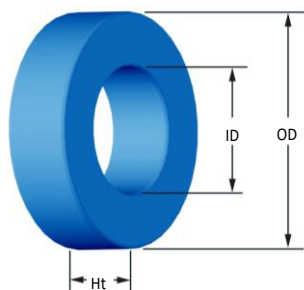
**Coating/Packaging Information**

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	4 Pcs/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	65	81	102	127	159	198	247	309	385	479	597
	Rdc(Ω)	22.4 m	44.4 m	88.9 m	176.1 m	350.7 m	694.5 m	1.4	2.7	5.4	10.7	21.3
<b>Full Winding</b>	Turns	261	404	625	967	1,497	2,316	3,585	5,549	8,589	13,293	20,574
	Rdc(Ω)	90.0 m	221.5 m	545.0 m	1.3	3.3	8.1	20.0	49.2	121.2	298.3	734.3

# 6.500 in./165.1 mm OD Toroid



**Typical Part Number: MS - 650 125 - 2**

Material Type → MS  
 OD in 100th inches → 650  
 Reference Permeability → 125  
 Finish → -2  
 Area for Special Height (in XX.Xmm) →

## Physical Dimensions

OD	Bare Core Nominal		Coated Core (max)	
	mm	in	mm	in
ID	Bare Core Nominal		Coated Core (min)	
	102.4 mm	4.031 in	101.13 mm	3.981 in
Ht	Bare Core Nominal		Coated Core (max)	
	31.75 mm	1.250 in	33.02 mm	1.300 in

## Magnetic Dimensions

<b>Ae</b>	Effective Magnetic Cross Section	9.87 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	41.2 cm
<b>Ve</b>	Effective Core Volume	415 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	80.3 cm <sup>2</sup>
<b>SA</b>	Surface Area	838 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	18.2 cm

## Permeability Part Numbers

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	42	MS-650014-2				FS-650014-2			
26μ	78	MS-650026-2				FS-650026-2	OC-650026-2	OD-650026-2	OE-650026-2
40μ	120	MS-650040-2							
60μ	181	MS-650060-2				FS-650060-2			
75μ	N/A								
90μ	N/A								
125μ	N/A								
147μ	N/A								
160μ	N/A								
173μ	N/A								
205μ	N/A								
<b>Approx. Unit Weight:</b>		2,400 g	2,320 g	3,090 g	2,850 g	2,820 g	2,760 g	2,760 g	2,760 g

\*OP Material is available, further details listed on website

## Test Conditions

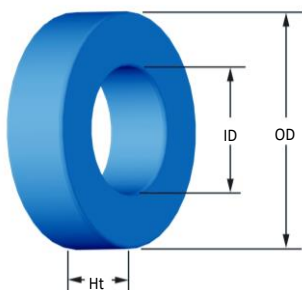
<b>Winding</b>	N=100, #22 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	4.4 V
<b>A<sub>L</sub> Tolerance</b>	±8%

## Coating/Packaging Information

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	4 Pcs/Box

## Winding Table

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	83	104	130	162	203	253	315	393	489	609	758
	Rdc(Ω)	31.0 m	61.8 m	122.9 m	243.7 m	485.6 m	962.5 m	1.9	3.8	7.5	14.8	29.3
<b>Full Winding</b>	Turns	420	651	1,007	1,559	2,413	3,734	5,780	8,946	13,846	21,429	33,167
	Rdc(Ω)	157.0 m	387.1 m	952.3 m	2.3	5.8	14.2	35.0	86.1	211.9	521.5	1.3 k



<b>Typical Part Number:</b>	<b>MS - 775 125 - 2</b>
Material Type	↑
OD in 100th inches	↑
Reference Permeability	↑
Finish	↑
Area for Special Height (in XX.Xmm)	↑

**Physical Dimensions**

OD	Bare Core Nominal	196.85 mm	7.750 in
	Coated Core (max)	198.374 mm	7.810 in
ID	Bare Core Nominal	146.05 mm	5.750 in
	Coated Core (min)	144.526 mm	5.690 in
Ht	Bare Core Nominal	25.4 mm	1.000 in
	Coated Core (max)	26.924 mm	1.060 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	6.26 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	53.86 cm
<b>Ve</b>	Effective Core Volume	337 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	164.1 cm <sup>2</sup>
<b>SA</b>	Surface Area	1,144 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	18.0 cm

**Permeability Part Numbers**

Reference Perm.	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
							OC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	20.5	MS-775014-2				FS-775014-2			
26μ	38	MS-775026-2				FS-775026-2	OC-775026-2	OD-775026-2	OE-775026-2
40μ	58.5	MS-775040-2							
60μ	88	MS-775060-2				FS-775060-2			
75μ	N/A								
90μ	N/A								
125μ	N/A								
147μ	N/A								
160μ	N/A								
173μ	N/A								
205μ	N/A								
<b>Approx. Unit Weight:</b>		1,950 g	1,880 g	2,510 g	2,320 g	2,290 g	2,240 g	2,240 g	2,240 g

\*OP Material is available, further details listed on website

**Test Conditions**

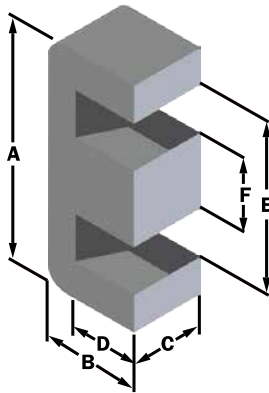
<b>Winding</b>	N=100, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	2.8 V
<b>A<sub>L</sub> Tolerance</b>	±8%

**Coating/Packaging Information**

<b>Coating Type</b>	Blue Epoxy
<b>Voltage Breakdown</b>	1000 Vrms
<b>Limit</b>	0.1 mA, 5 s
<b>Package Quantity</b>	3 Pcs/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Single Layer</b>	Turns	120	150	187	233	291	362	451	562	700	872	1,085
	Rdc(Ω)	44.4 m	88.3 m	175.0 m	346.8 m	688.9 m	1.4	2.7	5.4	10.6	21.0	41.6
<b>Full Winding</b>	Turns	859	1,329	2,057	3,184	4,928	7,627	11,804	18,270	28,277	43,766	67,739
	Rdc(Ω)	317.8 m	782.1 m	1.9	4.7	11.7	28.7	70.7	174.0	428.2	1.1 k	2.6 k



**Typical Part Number: E MS - 013 06 04 - 090**

Geometry → E  
 Material Type → MS  
 "A" Dimension in XXXmm → 013  
 "B" Dimension in XXmm → 06  
 "C" Dimension in XXmm → 04  
 Reference Permeability → 090  
 Standard Industrial Size: DIN 13/4

**Physical Dimensions**

<b>A</b>	12.7 ± 0.25 mm	0.500 ± 0.010 in
<b>B</b>	6.4 ± 0.10 mm	0.252 ± 0.004 in
<b>C</b>	3.56 ± 0.15 mm	0.140 ± 0.006 in
<b>D</b>	4.42 mm (min.)	0.174 in (min.)
<b>E</b>	8.89 mm (min.)	0.350 in (min.)
<b>F</b>	3.56 ± 0.13 mm	0.140 ± 0.005 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.130 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	2.96 cm
<b>Ve</b>	Effective Core Volume	0.385 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	0.230 cm <sup>2</sup>
<b>SA</b>	Surface Area	6.01 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	2.49 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	13	EMS-0130604-014	EFS-0130604-014
26μ	20	EMS-0130604-026	EFS-0130604-026
40μ	28	EMS-0130604-040	EFS-0130604-040
60μ	39	EMS-0130604-060	EFS-0130604-060
75μ	47	EMS-0130604-075	
90μ	55	EMS-0130604-090	
<b>Approximate Unit Weight:</b>		1.1 g/half	1.3 g/half

**Test Conditions**

<b>Winding</b>	N=100, #28 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.058 V
<b>A<sub>L</sub> Tolerance</b>	±8%

**Coating/Packaging Information**

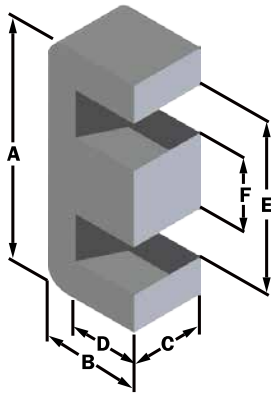
<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	1,500 Halves/Box

**Winding Table**

Wire Size	AWG	20	22	24	26	28	30	32	34	36	38	40
	mm	0.800	0.630	0.500	0.400	0.315	0.250	0.200	0.160	0.125	0.100	0.080
<b>Full Winding</b>	Turns	17	26	41	63	98	151	234	363	561	869	1,345
	Rdc(Ω)	14.1 m	34.3 m	85.9 m	209.9 m	519.4 m	1.3	3.1	7.7	19.0	46.9	115.3

Please refer to individual part datasheet for magnetic performance curves





**Typical Part Number: EMS - 019 08 05 - 090**

Geometry →  
 Material Type →  
 "A" Dimension in XXXmm →  
 "B" Dimension in XXmm →  
 "C" Dimension in XXmm →  
 Reference Permeability →  
 Standard Industrial Size: LAM EI-187

**Physical Dimensions**

<b>A</b>	19.3 ± 0.30 mm	0.760 ± 0.012 in
<b>B</b>	8.1 ± 0.18 mm	0.319 ± 0.007 in
<b>C</b>	4.78 ± 0.15 mm	0.188 ± 0.006 in
<b>D</b>	5.54 mm (min.)	0.218 in (min.)
<b>E</b>	13.9 mm (min.)	0.547 in (min.)
<b>F</b>	4.78 ± 0.13 mm	0.188 ± 0.005 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.228 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	4.01 cm
<b>Ve</b>	Effective Core Volume	0.914 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	0.498 cm <sup>2</sup>
<b>SA</b>	Surface Area	11.9 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	3.74 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	17	EMS-0190805-014	EFS-0190805-014
26μ	26	EMS-0190805-026	EFS-0190805-026
40μ	35	EMS-0190805-040	EFS-0190805-040
60μ	48	EMS-0190805-060	EFS-0190805-060
75μ	61	EMS-0190805-075	
90μ	69	EMS-0190805-090	
<b>Approximate Unit Weight:</b>		2.6 g/half	3.0 g/half

**Test Conditions**

<b>Winding</b>	N=100, #26 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.10 V
<b>A<sub>L</sub> Tolerance</b>	±8%

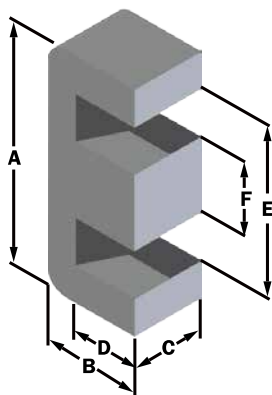
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	1,080 Halves/Box

**Winding Table**

Wire Size	AWG	16	18	20	22	24	26	28	30	32	34	36
	mm	1.250	1.000	0.800	0.630	0.500	0.400	0.315	0.250	0.200	0.160	0.125
<b>Full Winding</b>	Turns	15	24	37	57	88	137	212	328	508	786	1,216
	Rdc(Ω)	7.4 m	18.8 m	46.0 m	112.7 m	276.7 m	685.0 m	1.7	4.1	10.2	25.1	61.9

Please refer to individual part datasheet for magnetic performance curves



**Typical Part Number: EMS - 025 10 07 - 090**

Geometry →  
 Material Type →  
 "A" Dimension in XXXmm →  
 "B" Dimension in XXmm →  
 "C" Dimension in XXmm →  
 Reference Permeability →  
 Standard Industrial Size: LAM EE-24-25

**Physical Dimensions**

<b>A</b>	25.4 ± 0.38 mm	1.000 ± 0.015 in
<b>B</b>	9.5 ± 0.18 mm	0.374 ± 0.007 in
<b>C</b>	6.5 ± 0.10 mm	0.256 ± 0.004 in
<b>D</b>	6.2 mm (min.)	0.244 in (min.)
<b>E</b>	18.8 mm (min.)	0.740 in (min.)
<b>F</b>	6.2 ± 0.13 mm	0.244 ± 0.005 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.385 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	4.85 cm
<b>Ve</b>	Effective Core Volume	1.87 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	0.773 cm <sup>2</sup>
<b>SA</b>	Surface Area	19.4 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	5.06 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	24	EMS-0251007-014	EFS-0251007-014
26μ	39	EMS-0251007-026	EFS-0251007-026
40μ	52	EMS-0251007-040	EFS-0251007-040
60μ	70	EMS-0251007-060	EFS-0251007-060
75μ	85	EMS-0251007-075	
90μ	100	EMS-0251007-090	
<b>Approximate Unit Weight:</b>		5.4 g/half	6.1 g/half

**Test Conditions**

<b>Winding</b>	N=100, #24 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.17 V
<b>A<sub>L</sub> Tolerance</b>	±8%

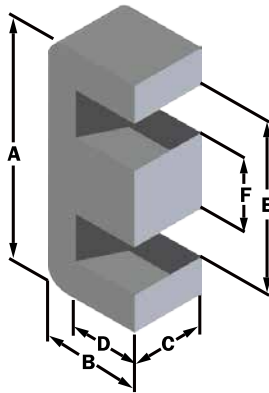
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	840 Halves/Box

**Winding Table**

Wire Size	AWG	14	16	18	20	22	24	26	28	30	32	34
	mm	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315	0.250	0.200	0.160
Full Winding	Turns	15	24	37	57	89	137	213	329	509	788	1,219
	Rdc(Ω)	6.3 m	16.0 m	39.2 m	96.0 m	238.3 m	583.4 m	1.4	3.5	8.7	21.5	52.8

Please refer to individual part datasheet for magnetic performance curves



**Typical Part Number: EMS - 030 15 07 - 090**

Geometry →  
 Material Type →  
 "A" Dimension in XXXmm →  
 "B" Dimension in XXmm →  
 "C" Dimension in XXmm →  
 Reference Permeability →  
 Standard Industrial Size: LAM E118, DIN 30/7

**Physical Dimensions**

<b>A</b>	30.1 ± 0.46 mm	1.185 ± 0.018 in
<b>B</b>	15.01 ± 0.23 mm	0.591 ± 0.009 in
<b>C</b>	7.06 ± 0.15 mm	0.278 ± 0.006 in
<b>D</b>	9.7 mm (min.)	0.382 in (min.)
<b>E</b>	19.5 mm (min.)	0.768 in (min.)
<b>F</b>	6.96 ± 0.20 mm	0.274 ± 0.008 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.601 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	6.56 cm
<b>Ve</b>	Effective Core Volume	3.94 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	1.20 cm <sup>2</sup>
<b>SA</b>	Surface Area	31.4 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	5.31 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	28	EMS-0301507-014	EFS-0301507-014
26μ	40	EMS-0301507-026	EFS-0301507-026
40μ	54	EMS-0301507-040	EFS-0301507-040
60μ	75	EMS-0301507-060	EFS-0301507-060
75μ	98	EMS-0301507-075	
90μ	106	EMS-0301507-090	
<b>Approximate Unit Weight:</b>		11 g/half	13 g/half

**Test Conditions**

<b>Winding</b>	N=100, #22 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.27 V
<b>A<sub>L</sub> Tolerance</b>	±8%

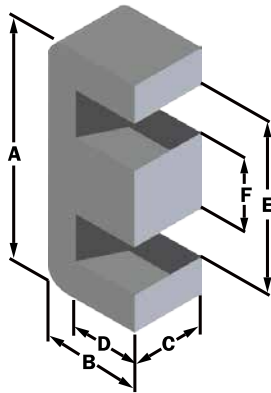
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	360 Halves/Box

**Winding Table**

Wire Size	AWG	12	14	16	18	20	22	24	26	28	30	32
	mm	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315	0.250	0.200
<b>Full Winding</b>	Turns	15	24	37	57	89	137	212	329	509	788	1,219
	Rdc(Ω)	4.1 m	10.5 m	25.9 m	63.3 m	157.3 m	385.1 m	947.7 m	2.3	5.8	14.2	34.9

Please refer to individual part datasheet for magnetic performance curves



Typical Part Number: **E MS - 035 14 09 - 090**

Geometry \_\_\_\_\_  
 Material Type \_\_\_\_\_  
 "A" Dimension in XXXmm \_\_\_\_\_  
 "B" Dimension in XXmm \_\_\_\_\_  
 "C" Dimension in XXmm \_\_\_\_\_  
 Reference Permeability \_\_\_\_\_  
 Standard Industrial Size: LAM EI-375 (E137)

**Physical Dimensions**

<b>A</b>	34.5 ± 0.51 mm	1.358 ± 0.020 in
<b>B</b>	14.1 ± 0.23 mm	0.555 ± 0.009 in
<b>C</b>	9.4 ± 0.18 mm	0.370 ± 0.007 in
<b>D</b>	9.6 mm (min.)	0.378 in (min.)
<b>E</b>	25.3 mm (min.)	0.996 in (min.)
<b>F</b>	9.3 ± 0.20 mm	0.366 ± 0.008 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	0.840 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	6.94 cm
<b>Ve</b>	Effective Core Volume	5.83 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	1.52 cm <sup>2</sup>
<b>SA</b>	Surface Area	38.4 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	6.94 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	37	EMS-0351409-014	EFS-0351409-014
26μ	56	EMS-0351409-026	EFS-0351409-026
40μ	75	EMS-0351409-040	EFS-0351409-040
60μ	102	EMS-0351409-060	EFS-0351409-060
75μ	129	EMS-0351409-075	
90μ	146	EMS-0351409-090	
<b>Approximate Unit Weight:</b>		17 g/half	19 g/half

**Test Conditions**

<b>Winding</b>	N=100, #20 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.37 V
<b>A<sub>L</sub> Tolerance</b>	±8%

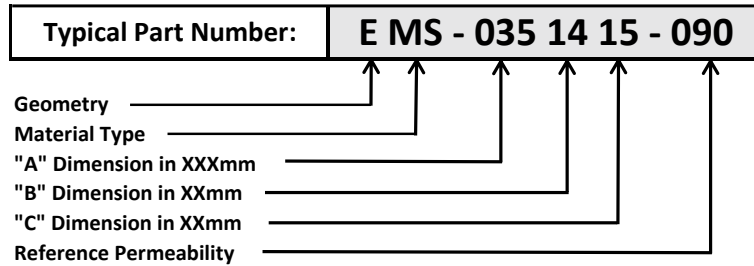
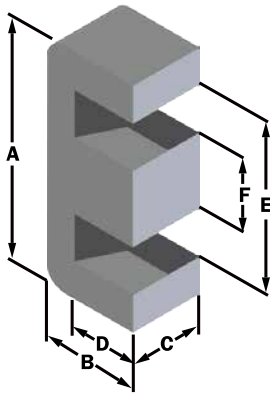
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	315 Halves/Box

**Winding Table**

Wire Size	AWG	12	14	16	18	20	22	24	26	28	30	32
		mm	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315	0.250
<b>Full Winding</b>	Turns	20	30	47	73	112	174	269	417	645	998	1,545
	Rdc(Ω)	7.2 m	17.2 m	42.9 m	106.0 m	258.6 m	639.0 m	1.6	3.9	9.5	23.4	57.7

Please refer to individual part datasheet for magnetic performance curves



**Physical Dimensions**

<b>A</b>	34.5 ± 0.51 mm	1.358 ± 0.020 in
<b>B</b>	14.1 ± 0.23 mm	0.555 ± 0.009 in
<b>C</b>	15 ± 0.18 mm	0.591 ± 0.007 in
<b>D</b>	9.6 mm (min.)	0.378 in (min.)
<b>E</b>	25.3 mm (min.)	0.996 in (min.)
<b>F</b>	9.3 ± 0.20 mm	0.366 ± 0.008 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	1.34 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	6.94 cm
<b>Ve</b>	Effective Core Volume	9.30 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	1.52 cm <sup>2</sup>
<b>SA</b>	Surface Area	45.4 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	8.06 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	59	EMS-0351415-014	EFS-0351415-014
26μ	88	EMS-0351415-026	EFS-0351415-026
40μ	121	EMS-0351415-040	EFS-0351415-040
60μ	169	EMS-0351415-060	EFS-0351415-060
75μ	N/A		
90μ	N/A		
<b>Approximate Unit Weight:</b>		27 g/half	30 g/half

**Test Conditions**

<b>Winding</b>	N=100, #20 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.59 V
<b>A<sub>L</sub> Tolerance</b>	±8%

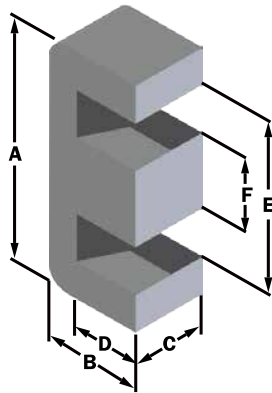
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	189 Halves/Box

**Winding Table**

Wire Size	AWG	12	14	16	18	20	22	24	26	28	30	32
	mm	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315	0.250	0.200
<b>Full Winding</b>	Turns	20	30	47	73	112	174	269	417	645	998	1,545
	Rdc(Ω)	8.4 m	20.0 m	49.8 m	123.1 m	300.3 m	742.1 m	1.8	4.5	11.1	27.2	67.0

Please refer to individual part datasheet for magnetic performance curves



Typical Part Number: **E MS - 041 17 13 - 090**

Geometry \_\_\_\_\_  
 Material Type \_\_\_\_\_  
 "A" Dimension in XXXmm \_\_\_\_\_  
 "B" Dimension in XXmm \_\_\_\_\_  
 "C" Dimension in XXmm \_\_\_\_\_  
 Reference Permeability \_\_\_\_\_  
 Standard Industrial Size: LAM EI-21 (E162)

**Physical Dimensions**

<b>A</b>	40.9 ± 0.61 mm	1.610 ± 0.024 in
<b>B</b>	16.5 ± 0.28 mm	0.650 ± 0.011 in
<b>C</b>	12.5 ± 0.18 mm	0.492 ± 0.007 in
<b>D</b>	10.4 mm (min.)	0.409 in (min.)
<b>E</b>	28.3 mm (min.)	1.114 in (min.)
<b>F</b>	12.5 ± 0.20 mm	0.492 ± 0.008 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	1.52 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	7.75 cm
<b>Ve</b>	Effective Core Volume	11.8 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	1.62 cm <sup>2</sup>
<b>SA</b>	Surface Area	53.2 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	8.16 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	59	EMS-0411713-014	EFS-0411713-014
26μ	88	EMS-0411713-026	EFS-0411713-026
40μ	119	EMS-0411713-040	EFS-0411713-040
60μ	163	EMS-0411713-060	EFS-0411713-060
75μ	209	EMS-0411713-075	
90μ	234	EMS-0411713-090	
<b>Approximate Unit Weight:</b>		34 g/half	38 g/half

**Test Conditions**

<b>Winding</b>	N=100, #20 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.67 V
<b>A<sub>L</sub> Tolerance</b>	±8%

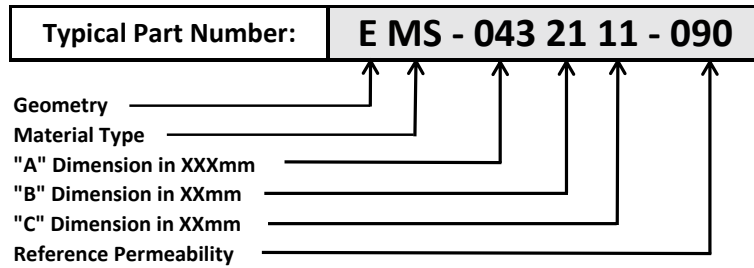
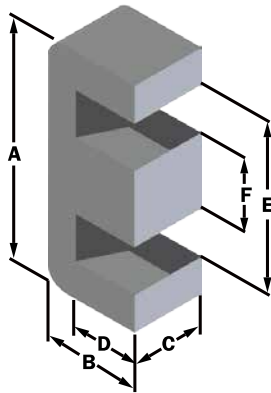
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	175 Halves/Box

**Winding Table**

Wire Size	AWG	10	12	14	16	18	20	22	24	26	28	30
	mm	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315	0.250
<b>Full Winding</b>	Turns	14	21	32	50	78	120	186	288	446	690	1,068
	Rdc(Ω)	3.7 m	8.9 m	21.6 m	53.7 m	133.2 m	325.8 m	803.1 m	2.0	4.9	12.0	29.5

Please refer to individual part datasheet for magnetic performance curves



**Physical Dimensions**

<b>A</b>	42.8 ± 0.64 mm	1.685 ± 0.025 in
<b>B</b>	21.1 ± 0.33 mm	0.831 ± 0.013 in
<b>C</b>	10.8 ± 0.25 mm	0.425 ± 0.010 in
<b>D</b>	15 mm (min.)	0.591 in (min.)
<b>E</b>	30.4 mm (min.)	1.197 in (min.)
<b>F</b>	11.9 ± 0.25 mm	0.469 ± 0.010 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	1.28 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	9.84 cm
<b>Ve</b>	Effective Core Volume	12.6 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	2.74 cm <sup>2</sup>
<b>SA</b>	Surface Area	65.7 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	8.24 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	39	EMS-0432111-014	EFS-0432111-014
26μ	56	EMS-0432111-026	EFS-0432111-026
40μ	76	EMS-0432111-040	EFS-0432111-040
60μ	105	EMS-0432111-060	EFS-0432111-060
75μ	139	EMS-0432111-075	
90μ	151	EMS-0432111-090	
<b>Approximate Unit Weight:</b>		36 g/half	41 g/half

**Test Conditions**

<b>Winding</b>	N=100, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.57 V
<b>A<sub>L</sub> Tolerance</b>	±8%

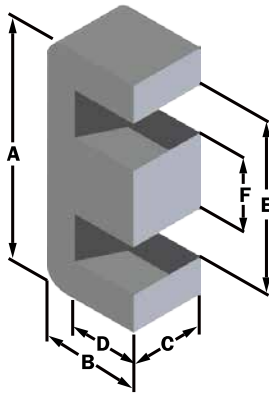
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	210 Halves/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Full Winding</b>	Turns	15	23	35	55	85	131	203	314	486	752	1,164
	Rdc(Ω)	2.5 m	6.2 m	15.0 m	37.5 m	92.1 m	225.8 m	556.5 m	1.4	3.4	8.3	20.4

Please refer to individual part datasheet for magnetic performance curves



**Typical Part Number: E MS - 043 21 15 - 090**

Geometry \_\_\_\_\_  
 Material Type \_\_\_\_\_  
 "A" Dimension in XXXmm \_\_\_\_\_  
 "B" Dimension in XXmm \_\_\_\_\_  
 "C" Dimension in XXmm \_\_\_\_\_  
 Reference Permeability \_\_\_\_\_  
 Standard Industrial Size: DIN 42/15 (E168)

**Physical Dimensions**

<b>A</b>	42.8 ± 0.64 mm	1.685 ± 0.025 in
<b>B</b>	21.1 ± 0.33 mm	0.831 ± 0.013 in
<b>C</b>	15.4 ± 0.25 mm	0.606 ± 0.010 in
<b>D</b>	15 mm (min.)	0.591 in (min.)
<b>E</b>	30.4 mm (min.)	1.197 in (min.)
<b>F</b>	11.9 ± 0.25 mm	0.469 ± 0.010 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	1.83 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	9.84 cm
<b>Ve</b>	Effective Core Volume	18.0 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	2.74 cm <sup>2</sup>
<b>SA</b>	Surface Area	73.5 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	9.16 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	56	EMS-0432115-014	EFS-0432115-014
26μ	80	EMS-0432115-026	EFS-0432115-026
40μ	108	EMS-0432115-040	EFS-0432115-040
60μ	150	EMS-0432115-060	EFS-0432115-060
75μ	199	EMS-0432115-075	
90μ	217	EMS-0432115-090	
<b>Approximate Unit Weight:</b>		52 g/half	59 g/half

**Test Conditions**

<b>Winding</b>	N=100, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	0.81 V
<b>A<sub>L</sub> Tolerance</b>	±8%

**Coating/Packaging Information**

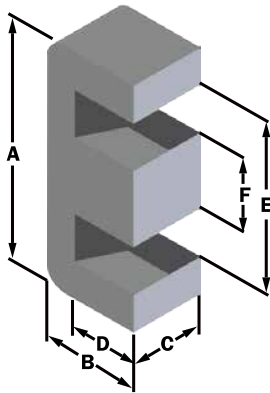
<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	175 Halves/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
Full Winding	Turns	15	23	35	55	85	131	203	314	486	752	1,164
	Rdc(Ω)	2.8 m	6.9 m	16.7 m	41.7 m	102.4 m	251.0 m	618.7 m	1.5	3.7	9.2	22.7

Please refer to individual part datasheet for magnetic performance curves





**Typical Part Number: E MS - 043 21 20 - 090**

Geometry → E  
 Material Type → MS  
 "A" Dimension in XXXmm → 043  
 "B" Dimension in XXmm → 21  
 "C" Dimension in XXmm → 20  
 Reference Permeability → 090

Standard Industrial Size: DIN 42/20 (E168A)

**Physical Dimensions**

<b>A</b>	42.8 ± 0.64 mm	1.685 ± 0.025 in
<b>B</b>	21.1 ± 0.33 mm	0.831 ± 0.013 in
<b>C</b>	20 ± 0.25 mm	0.787 ± 0.010 in
<b>D</b>	15 mm (min.)	0.591 in (min.)
<b>E</b>	30.4 mm (min.)	1.197 in (min.)
<b>F</b>	11.9 ± 0.25 mm	0.469 ± 0.010 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	2.37 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	9.84 cm
<b>Ve</b>	Effective Core Volume	23.3 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	2.74 cm <sup>2</sup>
<b>SA</b>	Surface Area	81.3 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	10.1 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	73	EMS-0432120-014	EFS-0432120-014
26μ	104	EMS-0432120-026	EFS-0432120-026
40μ	140	EMS-0432120-040	EFS-0432120-040
60μ	194	EMS-0432120-060	EFS-0432120-060
75μ	257	EMS-0432120-075	
90μ	281	EMS-0432120-090	
<b>Approximate Unit Weight:</b>		67 g/half	76 g/half

**Test Conditions**

<b>Winding</b>	N=100, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	1.1 V
<b>A<sub>L</sub> Tolerance</b>	±8%

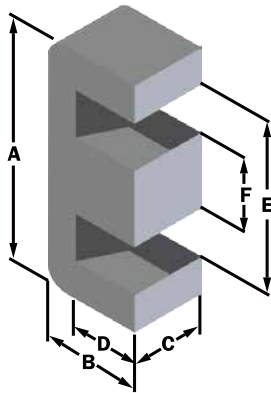
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	140 Halves/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Full Winding</b>	Turns	15	23	35	55	85	131	203	314	486	752	1,164
	Rdc(Ω)	3.1 m	7.6 m	18.3 m	45.9 m	112.7 m	276.2 m	680.8 m	1.7	4.1	10.1	25.0

Please refer to individual part datasheet for magnetic performance curves



**Typical Part Number: E MS - 055 24 19 - 090**

Geometry → E  
 Material Type → MS  
 "A" Dimension in XXXmm → 055  
 "B" Dimension in XXmm → 24  
 "C" Dimension in XXmm → 19  
 Reference Permeability → 090  
 #REF!

**Physical Dimensions**

<b>A</b>	54.9 ± 0.81 mm	2.161 ± 0.032 in
<b>B</b>	23.65 ± 0.41 mm	0.931 ± 0.016 in
<b>C</b>	18.8 ± 0.41 mm	0.740 ± 0.016 in
<b>D</b>	14.5 mm (min.)	0.571 in (min.)
<b>E</b>	37.5 mm (min.)	1.476 in (min.)
<b>F</b>	16.8 ± 0.33 mm	0.661 ± 0.013 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	3.15 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	10.7 cm
<b>Ve</b>	Effective Core Volume	33.7 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	2.95 cm <sup>2</sup>
<b>SA</b>	Surface Area	104 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	11.3 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	N/A		
26μ	117	EMS-0552419-026	EFS-0552419-026
40μ	N/A		
60μ	227	EMS-0552419-060	EFS-0552419-060
75μ	N/A		
90μ	370	EMS-0552419-090	
<b>Approximate Unit Weight:</b>		97 g/half	110 g/half

**Test Conditions**

<b>Winding</b>	N=100, #18 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	1.4 V
<b>A<sub>L</sub> Tolerance</b>	±8%

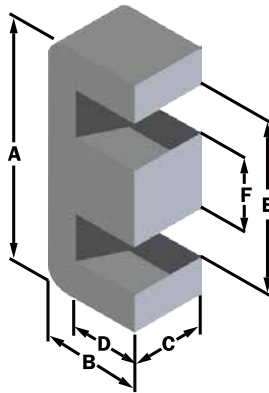
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	96 Halves/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Full Winding</b>	Turns	16	25	38	59	91	141	219	339	524	812	1,256
	Rdc(Ω)	3.7 m	9.2 m	22.3 m	54.9 m	134.8 m	332.1 m	820.4 m	2.0	5.0	12.2	30.1

Please refer to individual part datasheet for magnetic performance curves



**Typical Part Number: EMS - 055 28 21 - 090**

Geometry → E  
 Material Type → M  
 "A" Dimension in XXXmm → 055  
 "B" Dimension in XXmm → 28  
 "C" Dimension in XXmm → 21  
 Reference Permeability → 090  
 Standard Industrial Size: DIN 55/21 (E220)

**Physical Dimensions**

<b>A</b>	54.9 ± 0.81 mm	2.161 ± 0.032 in
<b>B</b>	27.6 ± 0.41 mm	1.087 ± 0.016 in
<b>C</b>	20.6 ± 0.41 mm	0.811 ± 0.016 in
<b>D</b>	18.5 mm (min.)	0.728 in (min.)
<b>E</b>	37.5 mm (min.)	1.476 in (min.)
<b>F</b>	16.8 ± 0.33 mm	0.661 ± 0.013 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	3.50 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	12.3 cm
<b>Ve</b>	Effective Core Volume	43.1 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	3.77 cm <sup>2</sup>
<b>SA</b>	Surface Area	121 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	11.6 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	86	EMS-0552821-014	EFS-0552821-014
26μ	116	EMS-0552821-026	EFS-0552821-026
40μ	157	EMS-0552821-040	EFS-0552821-040
60μ	219	EMS-0552821-060	EFS-0552821-060
75μ	304	EMS-0552821-075	
90μ	322	EMS-0552821-090	
<b>Approximate Unit Weight:</b>		120 g/half	140 g/half

**Test Conditions**

<b>Winding</b>	N=100, #16 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	1.6 V
<b>A<sub>L</sub> Tolerance</b>	±8%

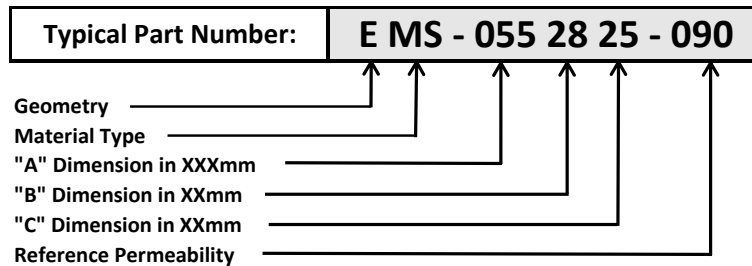
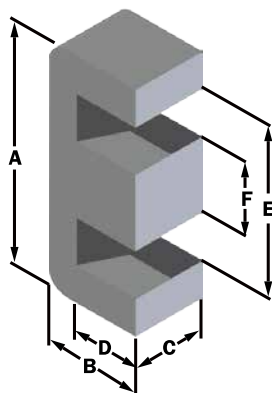
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	96 Halves/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Full Winding</b>	Turns	20	31	49	75	117	180	279	432	669	1,036	1,603
	Rdc(Ω)	4.8 m	11.8 m	29.6 m	72.1 m	178.8 m	437.6 m	1.1	2.7	6.5	16.1	39.6

Please refer to individual part datasheet for magnetic performance curves



**Physical Dimensions**

<b>A</b>	54.9 ± 0.81 mm	2.161 ± 0.032 in
<b>B</b>	27.6 ± 0.41 mm	1.087 ± 0.016 in
<b>C</b>	24.61 ± 0.48 mm	0.969 ± 0.019 in
<b>D</b>	18.5 mm (min.)	0.728 in (min.)
<b>E</b>	37.5 mm (min.)	1.476 in (min.)
<b>F</b>	16.8 ± 0.33 mm	0.661 ± 0.013 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	4.17 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	12.3 cm
<b>Ve</b>	Effective Core Volume	51.4 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	3.77 cm <sup>2</sup>
<b>SA</b>	Surface Area	130 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	12.4 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	102	EMS-0552825-014	EFS-0552825-014
26μ	138	EMS-0552825-026	EFS-0552825-026
40μ	187	EMS-0552825-040	EFS-0552825-040
60μ	261	EMS-0552825-060	EFS-0552825-060
75μ	362	EMS-0552825-075	
90μ	388	EMS-0552825-090	
<b>Approximate Unit Weight:</b>		150 g/half	170 g/half

**Test Conditions**

<b>Winding</b>	N=100, #16 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	1.9 V
<b>A<sub>L</sub> Tolerance</b>	±8%

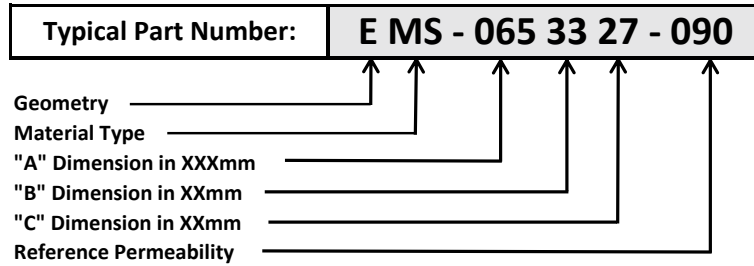
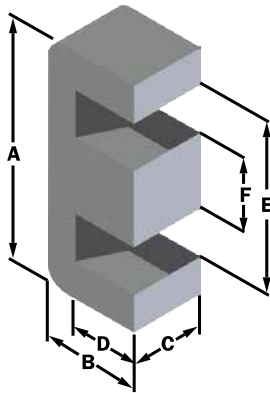
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	72 Halves/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Full Winding</b>	Turns	20	31	49	75	117	180	279	432	669	1,036	1,603
	Rdc(Ω)	5.1 m	12.6 m	31.7 m	77.1 m	191.2 m	467.8 m	1.2	2.8	7.0	17.2	42.4

Please refer to individual part datasheet for magnetic performance curves



**Physical Dimensions**

<b>A</b>	65.1 ± 0.97 mm	2.563 ± 0.038 in
<b>B</b>	32.5 ± 0.48 mm	1.280 ± 0.019 in
<b>C</b>	27 ± 0.53 mm	1.063 ± 0.021 in
<b>D</b>	22.2 mm (min.)	0.874 in (min.)
<b>E</b>	44.2 mm (min.)	1.740 in (min.)
<b>F</b>	19.7 ± 0.41 mm	0.776 ± 0.016 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	5.40 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	14.7 cm
<b>Ve</b>	Effective Core Volume	79.4 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	5.35 cm <sup>2</sup>
<b>SA</b>	Surface Area	177 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	14.2 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	111	EMS-0653327-014	EFS-0653327-014
26μ	162	EMS-0653327-026	EFS-0653327-026
40μ	230	EMS-0653327-040	EFS-0653327-040
60μ	300	EMS-0653327-060	EFS-0653327-060
75μ	392	EMS-0653327-075	
90μ	462	EMS-0653327-090	
<b>Approximate Unit Weight:</b>		230 g/half	260 g/half

**Test Conditions**

<b>Winding</b>	N=100, #16 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	2.4 V
<b>A<sub>L</sub> Tolerance</b>	±8%

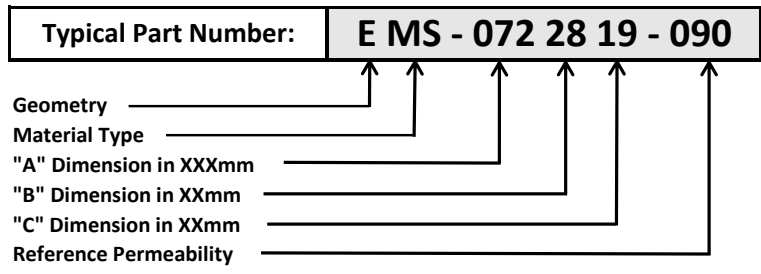
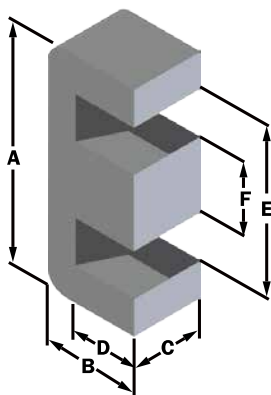
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	45 Halves/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Full Winding</b>	Turns	29	45	69	107	165	256	396	614	950	1,470	2,275
	Rdc(Ω)	8.5 m	21.0 m	51.1 m	126.0 m	309.1 m	762.6 m	1.9	4.6	11.4	28.0	69.0

Please refer to individual part datasheet for magnetic performance curves



**Physical Dimensions**

<b>A</b>	72.4 ± 1.09 mm	2.850 ± 0.043 in
<b>B</b>	27.9 ± 0.41 mm	1.098 ± 0.016 in
<b>C</b>	19.1 ± 0.38 mm	0.752 ± 0.015 in
<b>D</b>	17.8 mm (min.)	0.701 in (min.)
<b>E</b>	52.6 mm (min.)	2.071 in (min.)
<b>F</b>	19.1 ± 0.38 mm	0.752 ± 0.015 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	3.68 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	13.7 cm
<b>Ve</b>	Effective Core Volume	50.3 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	5.90 cm <sup>2</sup>
<b>SA</b>	Surface Area	159 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	14.3 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	81	EMS-0722819-014	EFS-0722819-014
26μ	130	EMS-0722819-026	EFS-0722819-026
40μ	173	EMS-0722819-040	EFS-0722819-040
60μ	236	EMS-0722819-060	EFS-0722819-060
75μ	287	EMS-0722819-075	
90μ	338	EMS-0722819-090	
<b>Approximate Unit Weight:</b>		150 g/half	160 g/half

**Test Conditions**

<b>Winding</b>	N=100, #16 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	1.6 V
<b>A<sub>L</sub> Tolerance</b>	±8%

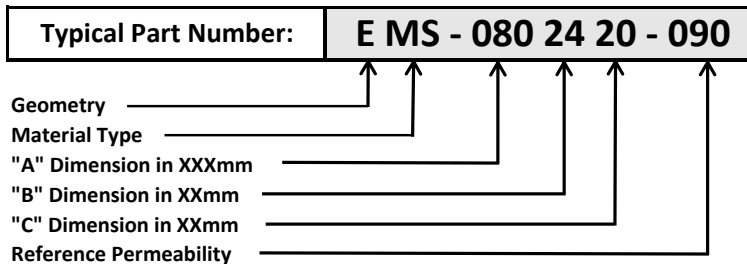
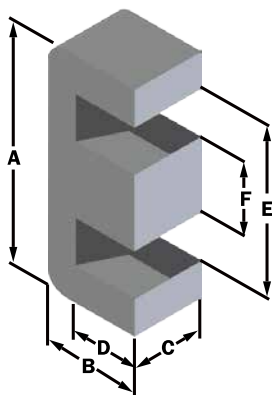
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	60 Halves/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Full Winding</b>	Turns	32	49	76	118	182	282	437	676	1,047	1,620	2,507
	Rdc(Ω)	9.4 m	23.0 m	56.7 m	140.0 m	343.3 m	846.0 m	2.1	5.1	12.6	31.1	76.5

Please refer to individual part datasheet for magnetic performance curves



**Physical Dimensions**

<b>A</b>	80 ± 1.19 mm	3.150 ± 0.047 in
<b>B</b>	24.05 ± 0.58 mm	0.947 ± 0.023 in
<b>C</b>	19.8 ± 0.41 mm	0.780 ± 0.016 in
<b>D</b>	14.05 mm (min.)	0.553 in (min.)
<b>E</b>	59.3 mm (min.)	2.335 in (min.)
<b>F</b>	19.8 ± 0.41 mm	0.780 ± 0.016 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	3.89 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	12.88 cm
<b>Ve</b>	Effective Core Volume	50.1 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	5.49 cm <sup>2</sup>
<b>SA</b>	Surface Area	162 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	15.8 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	91	EMS-0802420-014	EFS-0802420-014
26μ	137	EMS-0802420-026	EFS-0802420-026
40μ	190	EMS-0802420-040	EFS-0802420-040
60μ	254	EMS-0802420-060	EFS-0802420-060
75μ	323	EMS-0802420-075	
90μ	380	EMS-0802420-090	
<b>Approximate Unit Weight:</b>		140 g/half	160 g/half

**Test Conditions**

<b>Winding</b>	N=100, #16 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	1.7 V
<b>A<sub>L</sub> Tolerance</b>	±8%

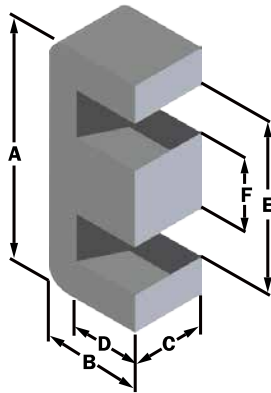
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	84 Halves/Box

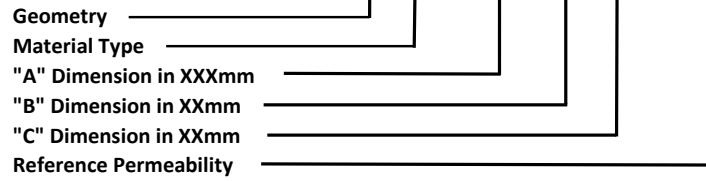
**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Full Winding</b>	Turns	30	46	71	110	170	263	407	630	975	1,509	2,336
	Rdc(Ω)	9.8 m	23.8 m	58.4 m	143.9 m	353.8 m	870.4 m	2.1	5.3	13.0	31.9	78.7

Please refer to individual part datasheet for magnetic performance curves



Typical Part Number: **E MS - 080 24 30 - 090**



**Physical Dimensions**

<b>A</b>	80 ± 1.19 mm	3.150 ± 0.047 in
<b>B</b>	24.05 ± 0.58 mm	0.947 ± 0.023 in
<b>C</b>	29.7 ± 0.41 mm	1.169 ± 0.016 in
<b>D</b>	14.05 mm (min.)	0.553 in (min.)
<b>E</b>	59.3 mm (min.)	2.335 in (min.)
<b>F</b>	19.8 ± 0.41 mm	0.780 ± 0.016 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	5.84 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	12.88 cm
<b>Ve</b>	Effective Core Volume	75.2 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	5.49 cm <sup>2</sup>
<b>SA</b>	Surface Area	188 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	17.8 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	137	EMS-0802430-014	EFS-0802430-014
26μ	205	EMS-0802430-026	EFS-0802430-026
40μ	285	EMS-0802430-040	EFS-0802430-040
60μ	370	EMS-0802430-060	EFS-0802430-060
75μ	484	EMS-0802430-075	
90μ	569	EMS-0802430-090	
<b>Approximate Unit Weight:</b>		220 g/half	240 g/half

**Test Conditions**

<b>Winding</b>	N=100, #16 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	2.6 V
<b>A<sub>L</sub> Tolerance</b>	±8%

**Coating/Packaging Information**

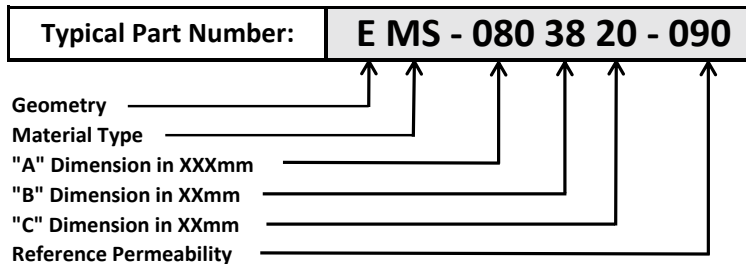
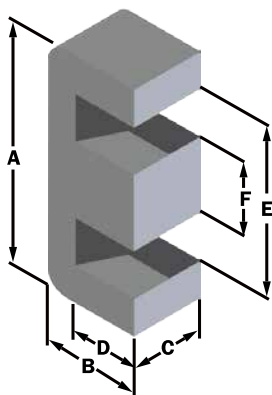
<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	63 Halves/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Full Winding</b>	Turns	30	46	71	110	170	263	407	630	975	1,509	2,336
	Rdc(Ω)	11.0 m	26.8 m	65.7 m	161.9 m	398.0 m	979.4 m	2.4	5.9	14.6	35.9	88.5

Please refer to individual part datasheet for magnetic performance curves





**Physical Dimensions**

<b>A</b>	80 ± 1.19 mm	3.150 ± 0.047 in
<b>B</b>	38.1 ± 0.58 mm	1.500 ± 0.023 in
<b>C</b>	19.8 ± 0.41 mm	0.780 ± 0.016 in
<b>D</b>	28.1 mm (min.)	1.106 in (min.)
<b>E</b>	59.3 mm (min.)	2.335 in (min.)
<b>F</b>	19.8 ± 0.41 mm	0.780 ± 0.016 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	3.89 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	18.5 cm
<b>Ve</b>	Effective Core Volume	72.1 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	11.0 cm <sup>2</sup>
<b>SA</b>	Surface Area	229 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	15.8 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	63	EMS-0803820-014	EFS-0803820-014
26μ	103	EMS-0803820-026	EFS-0803820-026
40μ	145	EMS-0803820-040	EFS-0803820-040
60μ	190	EMS-0803820-060	EFS-0803820-060
75μ	225	EMS-0803820-075	
90μ	264	EMS-0803820-090	
<b>Approximate Unit Weight:</b>		210 g/half	230 g/half

**Test Conditions**

<b>Winding</b>	N=100, #14 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	1.7 V
<b>A<sub>L</sub> Tolerance</b>	±8%

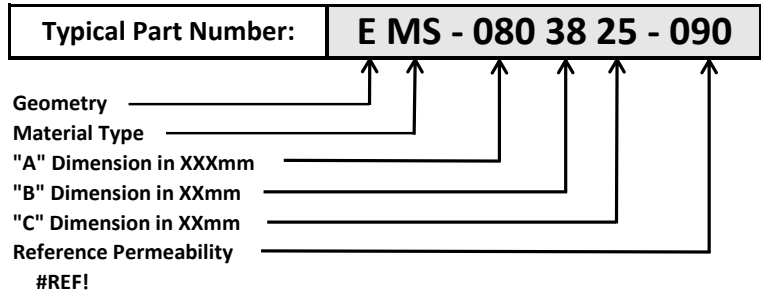
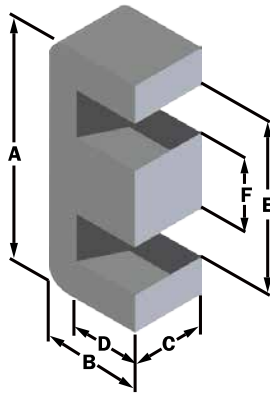
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	60 Halves/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Full Winding</b>	Turns	59	92	142	220	340	526	814	1,260	1,950	3,019	4,672
	Rdc(Ω)	19.2 m	47.6 m	116.8 m	287.9 m	707.5 m	1.7	4.3	10.5	26.0	63.9	157.3

Please refer to individual part datasheet for magnetic performance curves



**Physical Dimensions**

<b>A</b>	80 ± 1.19 mm	3.150 ± 0.047 in
<b>B</b>	38.1 ± 0.58 mm	1.500 ± 0.023 in
<b>C</b>	24.8 ± 0.41 mm	0.976 ± 0.016 in
<b>D</b>	28.1 mm (min.)	1.106 in (min.)
<b>E</b>	59.3 mm (min.)	2.335 in (min.)
<b>F</b>	19.8 ± 0.41 mm	0.780 ± 0.016 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	4.87 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	18.5 cm
<b>Ve</b>	Effective Core Volume	90.1 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	11.0 cm <sup>2</sup>
<b>SA</b>	Surface Area	245 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	16.8 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	N/A		
26μ	129	EMS-0803825-026	
40μ	N/A		
60μ	237	EMS-0803825-060	EFS-0803825-060
75μ	N/A		
90μ	330	EMS-0803825-090	
<b>Approximate Unit Weight:</b>		260 g/half	290 g/half

**Test Conditions**

<b>Winding</b>	N=100, #14 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	2.2 V
<b>A<sub>L</sub> Tolerance</b>	±8%

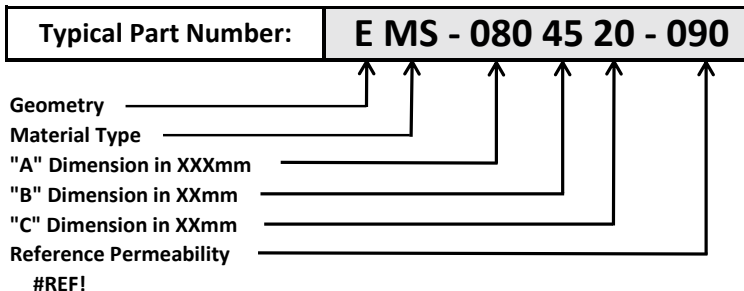
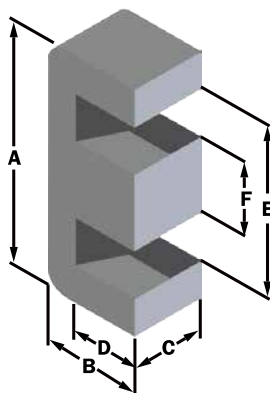
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	60 Halves/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
Full Winding	Turns	59	92	142	220	340	526	814	1,260	1,950	3,019	4,672
	Rdc(Ω)	20.4 m	50.6 m	124.2 m	306.1 m	752.3 m	1.9	4.6	11.2	27.6	68.0	167.3

Please refer to individual part datasheet for magnetic performance curves



**Physical Dimensions**

<b>A</b>	80 ± 1.19 mm	3.150 ± 0.047 in
<b>B</b>	44.6 ± 0.58 mm	1.756 ± 0.023 in
<b>C</b>	19.8 ± 0.41 mm	0.780 ± 0.016 in
<b>D</b>	34.4 mm (min.)	1.354 in (min.)
<b>E</b>	59.3 mm (min.)	2.335 in (min.)
<b>F</b>	19.8 ± 0.41 mm	0.780 ± 0.016 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	3.89 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	19.8 cm
<b>Ve</b>	Effective Core Volume	77.0 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	13.4 cm <sup>2</sup>
<b>SA</b>	Surface Area	260 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	15.8 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	N/A		
26μ	91	EMS-0804520-026	EFS-0804520-026
40μ	N/A		
60μ	173	EMS-0804520-060	EFS-0804520-060
75μ	N/A		
90μ	N/A	EMS-0804520-090	
<b>Approximate Unit Weight:</b>		220 g/half	250 g/half

**Test Conditions**

<b>Winding</b>	N=100, #14 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	1.7 V
<b>A<sub>L</sub> Tolerance</b>	±8%

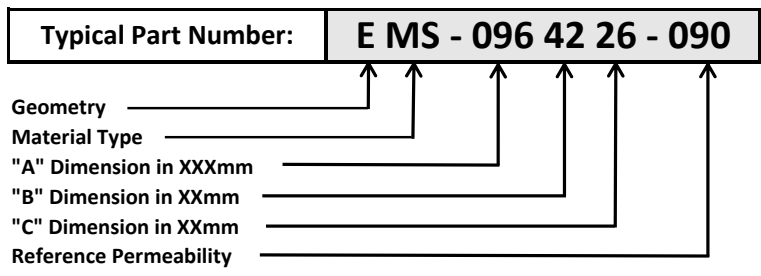
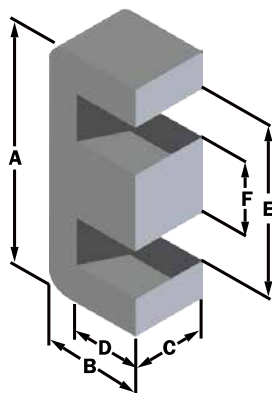
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	48 Halves/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Full Winding</b>	Turns	73	112	174	269	416	644	997	1,543	2,388	3,695	5,720
	Rdc(Ω)	23.7 m	57.9 m	143.2 m	352.0 m	865.7 m	2.1	5.2	12.9	31.8	78.2	192.6

Please refer to individual part datasheet for magnetic performance curves



**Physical Dimensions**

<b>A</b>	96 ± 1.45 mm	3.780 ± 0.057 in
<b>B</b>	41.5 ± 0.64 mm	1.634 ± 0.025 in
<b>C</b>	25.5 ± 0.51 mm	1.004 ± 0.020 in
<b>D</b>	25 mm (min.)	0.984 in (min.)
<b>E</b>	64.4 mm (min.)	2.535 in (min.)
<b>F</b>	31.6 ± 0.64 mm	1.244 ± 0.025 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	8.02 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	18.03 cm
<b>Ve</b>	Effective Core Volume	145 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	8.04 cm <sup>2</sup>
<b>SA</b>	Surface Area	288 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	18.0 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	134	EMS-0964226-014	EFS-0964226-014
26μ	201	EMS-0964226-026	EFS-0964226-026
40μ	279	EMS-0964226-040	EFS-0964226-040
60μ	391	EMS-0964226-060	EFS-0964226-060
75μ	475	EMS-0964226-075	
90μ	559	EMS-0964226-090	
<b>Approximate Unit Weight:</b>		420 g/half	470 g/half

**Test Conditions**

<b>Winding</b>	N=100, #14 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	3.6 V
<b>A<sub>L</sub> Tolerance</b>	±8%

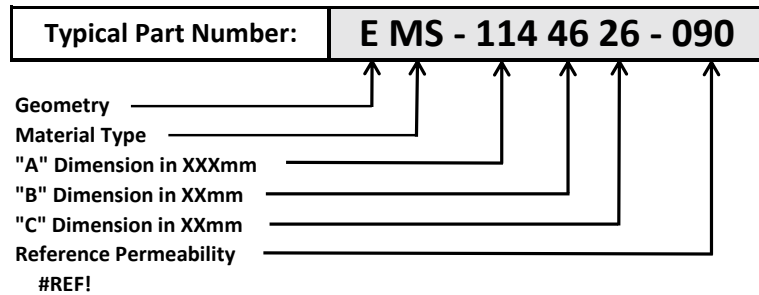
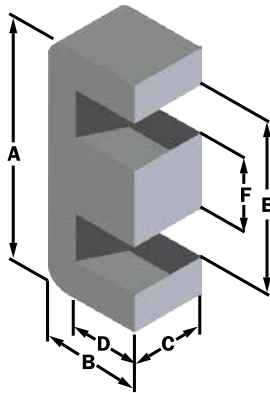
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	24 Halves/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Full Winding</b>	Turns	43	67	104	161	249	385	596	922	1,428	2,210	3,420
	Rdc(Ω)	15.9 m	39.4 m	97.2 m	239.4 m	588.9 m	1.4	3.6	8.8	21.6	53.2	130.9

Please refer to individual part datasheet for magnetic performance curves



**Physical Dimensions**

<b>A</b>	114 ± 1.70 mm	4.488 ± 0.067 in
<b>B</b>	46.2 ± 0.69 mm	1.819 ± 0.027 in
<b>C</b>	26.2 ± 0.58 mm	1.031 ± 0.023 in
<b>D</b>	28.6 mm (min.)	1.126 in (min.)
<b>E</b>	79.3 mm (min.)	3.122 in (min.)
<b>F</b>	34.9 ± 0.69 mm	1.374 ± 0.027 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	9.20 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	22.9 cm
<b>Ve</b>	Effective Core Volume	211 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	12.5 cm <sup>2</sup>
<b>SA</b>	Surface Area	379 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	21.1 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	N/A		
26μ	182	EMS-1144626-026	EFS-1144626-026
40μ	N/A		
60μ	354	EMS-1144626-060	EFS-1144626-060
75μ	N/A		
90μ	505	EMS-1144626-090	
<b>Approximate Unit Weight:</b>		610 g/half	690 g/half

**Test Conditions**

<b>Winding</b>	N=100, #14 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	4.1 V
<b>A<sub>L</sub> Tolerance</b>	±8%

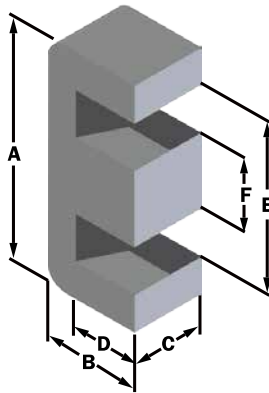
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	24 Halves/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Full Winding</b>	Turns	67	104	161	250	387	599	927	1,434	2,220	3,436	5,317
	Rdc(Ω)	29.1 m	71.8 m	176.7 m	436.3 m	1.1	2.6	6.5	16.0	39.4	97.0	238.8

Please refer to individual part datasheet for magnetic performance curves



**Typical Part Number: E MS - 114 46 35 - 090**

Geometry → E  
 Material Type → MS  
 "A" Dimension in XXXmm → 114  
 "B" Dimension in XXmm → 46  
 "C" Dimension in XXmm → 35  
 Reference Permeability → 090  
 Standard Industrial Size: E450

**Physical Dimensions**

<b>A</b>	114 ± 1.70 mm	4.488 ± 0.067 in
<b>B</b>	46.2 ± 0.69 mm	1.819 ± 0.027 in
<b>C</b>	34.9 ± 0.58 mm	1.374 ± 0.023 in
<b>D</b>	28.6 mm (min.)	1.126 in (min.)
<b>E</b>	79.3 mm (min.)	3.122 in (min.)
<b>F</b>	34.9 ± 0.69 mm	1.374 ± 0.027 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	12.2 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	22.9 cm
<b>Ve</b>	Effective Core Volume	280 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	12.5 cm <sup>2</sup>
<b>SA</b>	Surface Area	415 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	22.8 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	161	EMS-1144635-014	EFS-1144635-014
26μ	241	EMS-1144635-026	EFS-1144635-026
40μ	335	EMS-1144635-040	EFS-1144635-040
60μ	469	EMS-1144635-060	EFS-1144635-060
75μ	569	EMS-1144635-075	
90μ	669	EMS-1144635-090	
<b>Approximate Unit Weight:</b>		810 g/half	910 g/half

**Test Conditions**

<b>Winding</b>	N=100, #14 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	5.4 V
<b>A<sub>L</sub> Tolerance</b>	±8%

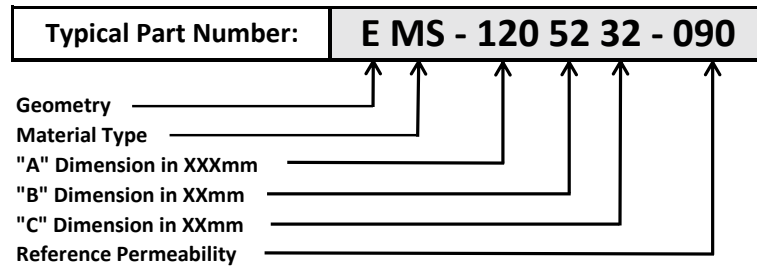
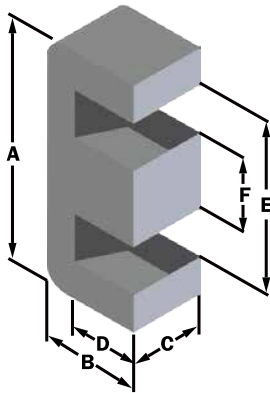
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	16 Halves/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm		3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400
Full Winding	Turns	67	104	161	250	387	599	927	1,434	2,220	3,436	5,317
	Rdc(Ω)	31.5 m	77.7 m	191.2 m	472.3 m	1.2	2.9	7.0	17.3	42.7	105.0	258.5

Please refer to individual part datasheet for magnetic performance curves



**Physical Dimensions**

<b>A</b>	120 ± 1.80 mm	4.724 ± 0.071 in
<b>B</b>	52 ± 0.79 mm	2.047 ± 0.031 in
<b>C</b>	31.5 ± 0.64 mm	1.240 ± 0.025 in
<b>D</b>	31.5 mm (min.)	1.240 in (min.)
<b>E</b>	80.4 mm (min.)	3.165 in (min.)
<b>F</b>	39.6 ± 0.71 mm	1.559 ± 0.028 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	13.03 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	23.78 cm
<b>Ve</b>	Effective Core Volume	310 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	12.6 cm <sup>2</sup>
<b>SA</b>	Surface Area	449 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	22.4 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	165	EMS-1205232-014	EFS-1205232-014
26μ	248	EMS-1205232-026	EFS-1205232-026
40μ	344	EMS-1205232-040	EFS-1205232-040
60μ	482	EMS-1205232-060	EFS-1205232-060
75μ	585	EMS-1205232-075	
90μ	689	EMS-1205232-090	
<b>Approximate Unit Weight:</b>		900 g/half	1,010 g/half

**Test Conditions**

<b>Winding</b>	N=100, #14 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	5.8 V
<b>A<sub>L</sub> Tolerance</b>	±8%

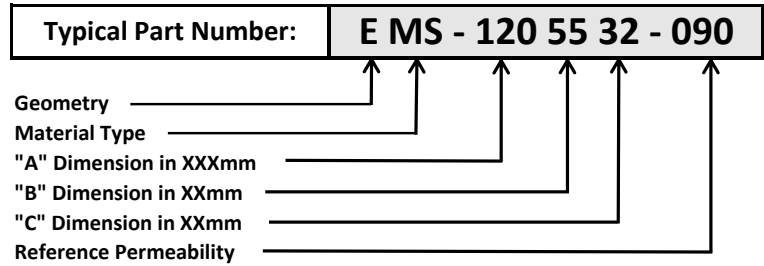
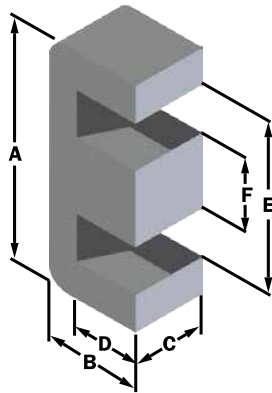
**Coating/Packaging Information**

<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	16 Halves/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Full Winding</b>	Turns	68	105	163	252	391	605	936	1,449	2,242	3,470	5,371
	Rdc(Ω)	31.3 m	76.8 m	189.7 m	466.5 m	1.2	2.8	7.0	17.2	42.2	103.9	255.9

Please refer to individual part datasheet for magnetic performance curves



**Physical Dimensions**

<b>A</b>	120 ± 1.80 mm	4.724 ± 0.071 in
<b>B</b>	55 ± 0.79 mm	2.165 ± 0.031 in
<b>C</b>	31.5 ± 0.64 mm	1.240 ± 0.025 in
<b>D</b>	34.5 mm (min.)	1.358 in (min.)
<b>E</b>	80.4 mm (min.)	3.165 in (min.)
<b>F</b>	39.6 ± 0.71 mm	1.559 ± 0.028 in

**Magnetic Dimensions**

<b>Ae</b>	Effective Magnetic Cross Section	12.152 cm <sup>2</sup>
<b>Le</b>	Effective Magnetic Path Length	24.38 cm
<b>Ve</b>	Effective Core Volume	318 cm <sup>3</sup>
<b>WA</b>	Minimum Effective Window Area	13.8 cm <sup>2</sup>
<b>SA</b>	Surface Area	470 cm <sup>2</sup>
<b>MLT</b>	Mean Length Per Turn	22.4 cm

**Permeability**

**Part Numbers**

Reference Permeability	A <sub>L</sub> Value (nH/N <sup>2</sup> )	MS Sendust	FluxSan™ Silicon Iron
14μ	165	EMS-1205532-014	EFS-1205532-014
26μ	248	EMS-1205532-026	EFS-1205532-026
40μ	344	EMS-1205532-040	EFS-1205532-040
60μ	482	EMS-1205532-060	EFS-1205532-060
75μ	585	EMS-1205532-075	
90μ	689	EMS-1205532-090	
<b>Approximate Unit Weight:</b>		920 g/half	1,030 g/half

**Test Conditions**

<b>Winding</b>	N=100, #14 AWG
<b>Frequency</b>	10 kHz
<b>Voltage</b>	5.4 V
<b>A<sub>L</sub> Tolerance</b>	±8%

**Coating/Packaging Information**

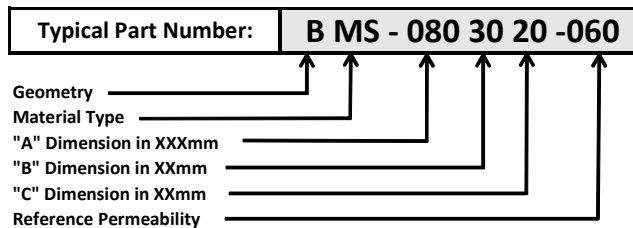
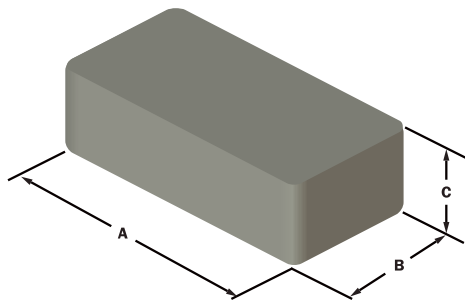
<b>Coating Type</b>	None
<b>Voltage Breakdown</b>	N/A
<b>Limit</b>	N/A
<b>Package Quantity</b>	16 Halves/Box

**Winding Table**

Wire Size	AWG	8	10	12	14	16	18	20	22	24	26	28
	mm	3.150	2.500	2.000	1.600	1.250	1.000	0.800	0.630	0.500	0.400	0.315
<b>Full Winding</b>	Turns	75	115	179	276	428	662	1,025	1,587	2,456	3,801	5,882
	Rdc(Ω)	34.5 m	84.2 m	208.3 m	510.9 m	1.3	3.1	7.6	18.8	46.3	113.8	280.2

Please refer to individual part datasheet for magnetic performance curves



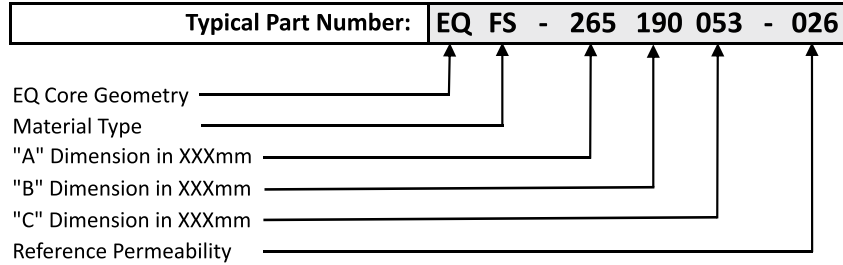
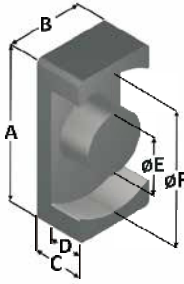


### Physical Dimensions

### Part Numbers

Physical Dimensions			Part Numbers		
A	B	C*	26μ	40μ	60μ
47.5 mm 1.870 in	41.0 mm 1.614 in	21.0 mm 0.827 in	BMS-0474120-026 BFS-0474120-026	BMS-0474120-040 BFS-0474120-040	BMS-0474120-060 BFS-0474120-060
47.5 mm 1.870 in	41.0 mm 1.614 in	27.5 mm 1.083 in	BMS-0474128-026 BFS-0474128-026	BMS-0474128-040 BFS-0474128-040	BMS-0474128-060 BFS-0474128-060
50.0 mm 1.969 in	30.0 mm 1.181 in	15.0 mm 0.591 in	BMS-0503015-026 BFS-0503015-026	BMS-0503015-040 BFS-0503015-040	BMS-0503015-060 BFS-0503015-060
50.0 mm 1.969 in	30.0 mm 1.181 in	20.0 mm 0.787 in	BMS-0503020-026 BFS-0503020-026	BMS-0503020-040 BFS-0503020-040	BMS-0503020-060 BFS-0503020-060
60.0 mm 2.362 in	30.0 mm 1.181 in	15.0 mm 0.591 in	BMS-0603015-026 BFS-0603015-026	BMS-0603015-040 BFS-0603015-040	BMS-0603015-060 BFS-0603015-060
60.0 mm 2.362 in	30.0 mm 1.181 in	20.0 mm 0.787 in	BMS-0603020-026 BFS-0603020-026	BMS-0603020-040 BFS-0603020-040	BMS-0603020-060 BFS-0603020-060
70.0 mm 2.756 in	30.0 mm 1.181 in	15.0 mm 0.591 in	BMS-0703015-026 BFS-0703015-026	BMS-0703015-040 BFS-0703015-040	BMS-0703015-060 BFS-0703015-060
70.0 mm 2.756 in	30.0 mm 1.181 in	20.0 mm 0.787 in	BMS-0703020-026 BFS-0703020-026	BMS-0703020-040 BFS-0703020-040	BMS-0703020-060 BFS-0703020-060
70.0 mm 2.756 in	30.0 mm 1.181 in	25.0 mm 0.984 in	BMS-0703025-026 BFS-0703025-026	BMS-0703025-040 BFS-0703025-040	BMS-0703025-060 BFS-0703025-060
80.0 mm 3.150 in	30.0 mm 1.181 in	15.0 mm 0.591 in	BMS-0803015-026 BFS-0803015-026	BMS-0803015-040 BFS-0803015-040	BMS-0803015-060 BFS-0803015-060
80.0 mm 3.150 in	30.0 mm 1.181 in	20.0 mm 0.787 in	BMS-0803020-026 BFS-0803020-026	BMS-0803020-040 BFS-0803020-040	BMS-0803020-060 BFS-0803020-060
80.0 mm 3.150 in	30.0 mm 1.181 in	25.0 mm 0.984 in	BMS-0803025-026 BFS-0803025-026	BMS-0803025-040 BFS-0803025-040	BMS-0803025-060 BFS-0803025-060
80.0 mm 3.150 in	30.0 mm 1.181 in	35.0 mm 1.378 in	BMS-0803035-026 BFS-0803035-026	BMS-0803035-040 BFS-0803035-040	BMS-0803035-060 BFS-0803035-060
±0.5 mm ±0.020 in	±0.5 mm ±0.020 in	±0.5 mm ±0.020 in	MS = Sendust FS = Fluxsan™ Refer to part data sheets for core weights and packaging information.		
Tolerance			*"C" dimension can be customized with heights available from 5mm to 35mm		

Please refer to individual part datasheet for magnetic performance curves

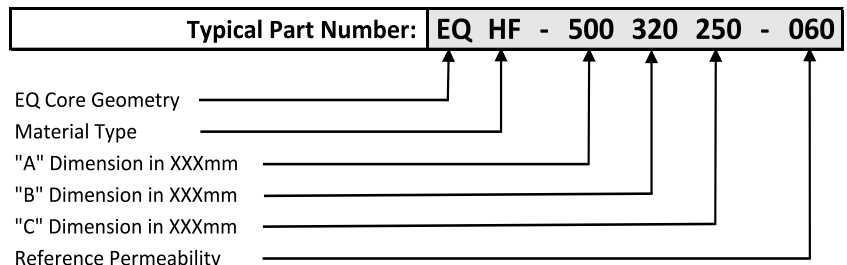
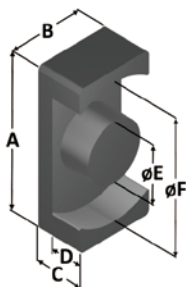


**EQ Core Part Number List, available in Sendust(MS), High-Flux™(HF) and Fluxsan™(FS) materials from 20mm to 50mm.**

Part Number	Unit	A	B	C	D	E	F	Effective Magnetc Path Length	Effective Magnetc Cross Section	AL-Value (nH/N <sup>2</sup> ) Reference Permeability		
								Le (cm)	Ae (cm <sup>2</sup> )	26	40	60
EQxx-205140050-xxx	mm	20.5±0.3	14.0±0.2	5.0±0.2	2.6±0.3	8.8±0.2	18.0±0.2	3.28	0.608	60	93	140
EQxx-205140055-xxx				5.5±0.2	3.1±0.3			3.48		57	88	132
EQxx-205140064-xxx				6.4±0.2	4.0±0.3			3.84		52	79	119
EQxx-205140078-xxx				7.8±0.2	5.4±0.3			4.40		45	69	104
EQxx-205140081-xxx				8.1±0.2	5.7±0.3			4.52		44	68	101
EQxx-205140086-xxx				8.6±0.2	6.2±0.3			4.72		42	65	97
EQxx-205140096-xxx				9.6±0.2	7.2±0.3			5.12		39	59	89
EQxx-205140101-xxx				10.1±0.2	7.7±0.3			5.32		37	57	86
EQxx-205140104-xxx				10.4±0.2	8.0±0.3			5.44		36	56	84

Part Number	Unit	A	B	C	D	E	F	Effective Magnetc Path Length	Effective Magnetc Cross Section	AL-Value (nH/N <sup>2</sup> ) Reference Permeability		
								Le (cm)	Ae (cm <sup>2</sup> )	26	40	60
EQxx-265190053-xxx	mm	26.5±0.3	19.0±0.2	5.3±0.2	2.0±0.3	12.0±0.2	22.6±0.3	3.55	1.198	110	169	254
EQxx-265190059-xxx				5.9±0.2	2.6±0.3			3.79		103	159	238
EQxx-265190063-xxx				6.3±0.2	3.0±0.3			3.95		99	152	228
EQxx-265190070-xxx				7.0±0.2	3.7±0.3			4.23		92	142	213
EQxx-265190077-xxx				7.7±0.2	4.4±0.3			4.51		87	133	200
EQxx-265190084-xxx				8.4±0.2	5.1±0.3			4.79		82	126	188
EQxx-265190088-xxx				8.8±0.2	5.5±0.3			4.95		79	121	182
EQxx-265190090-xxx				9.0±0.2	5.7±0.3			5.03		78	120	179
EQxx-265190101-xxx				10.1±0.2	6.8±0.3			5.47		72	110	165
EQxx-265190124-xxx				12.4±0.2	9.1±0.3			6.39		61	94	141
EQxx-265190135-xxx				13.5±0.2	10.2±0.3			6.83		57	88	132

Part Number	Unit	A	B	C	D	E	F	Effective Magnetc Path Length	Effective Magnetc Cross Section	AL-Value (nH/N <sup>2</sup> ) Reference Permeability		
								Le (cm)	Ae (cm <sup>2</sup> )	26	40	60
EQxx-320220072-xxx	mm	32.0±0.4	22.0±0.3	7.2±0.2	3.5±0.3	13.5±0.2	27.6±0.3	4.42	1.523	112	173	260
EQxx-320220076-xxx				7.6±0.2	3.9±0.3			4.79		104	160	240
EQxx-320220080-xxx				8.0±0.2	4.3±0.3			5.11		97	150	225
EQxx-320220085-xxx				8.5±0.2	4.8±0.3			5.31		94	144	216
EQxx-320220090-xxx				9.0±0.2	5.3±0.3			5.51		90	139	208
EQxx-320220095-xxx				9.5±0.2	5.8±0.3			5.71		87	134	201
EQxx-320220103-xxx				10.3±0.2	6.6±0.3			6.03		83	127	190
EQxx-320220110-xxx				11.0±0.2	7.3±0.3			6.31		79	121	182
EQxx-320220134-xxx				13.4±0.2	9.7±0.3			7.27		68	105	158
EQxx-320220140-xxx				14.0±0.2	10.3±0.3			7.51		66	102	153
EQxx-320220152-xxx				15.2±0.2	11.5±0.3			7.99		62	96	144
EQxx-320220172-xxx				17.2±0.2	13.5±0.3			8.79		56	87	130



Part Number	Unit	A	B	C	D	E	F	Effective Magnetc Path Length	Effective Magnetc Cross Section	AL-Value (nH/N <sup>2</sup> ) Reference Permeability		
								Le (cm)	Ae (cm <sup>2</sup> )	26	40	60
EQxx-360260090-xxx	mm	36.0±0.5	26.0±0.3	9.0±0.3	5.0±0.3	14.4±0.2	32.0±0.4	6.11	1.808	96	149	223
EQxx-360260140-xxx				14.0±0.3	10.0±0.3			8.11		73	112	168
EQxx-360260154-xxx				15.4±0.3	11.4±0.3			8.67		68	105	157
EQxx-360260164-xxx				16.4±0.3	12.4±0.3			9.07		65	100	150
EQxx-360260174-xxx				17.4±0.3	13.4±0.3			9.47		62	96	144

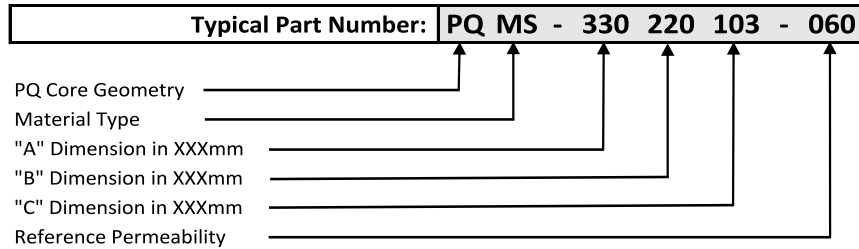
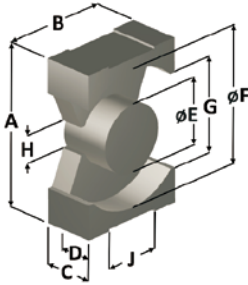
Part Number	Unit	A	B	C	D	E	F	Effective Magnetc Path Length	Effective Magnetc Cross Section	AL-Value (nH/N <sup>2</sup> ) Reference Permeability		
								Le (cm)	Ae (cm <sup>2</sup> )	26	40	60
EQxx-415280100-xxx	mm	41.5±0.5	28.0±0.4	10.0±0.3	5.5±0.3	14.9±0.2	36.5±0.4	7.56	1.997	86	133	199
EQxx-415280150-xxx				15.0±0.3	10.5±0.3			9.56		68	105	157
EQxx-415280164-xxx				16.4±0.3	11.9±0.3			10.12		64	99	149
EQxx-415280199-xxx				19.9±0.3	15.4±0.3			11.52		57	87	131

Part Number	Unit	A	B	C	D	E	F	Effective Magnetc Path Length	Effective Magnetc Cross Section	AL-Value (nH/N <sup>2</sup> ) Reference Permeability		
								Le (cm)	Ae (cm <sup>2</sup> )	26	40	60
EQxx-500320130-xxx	mm	50.0±0.6	32.0±0.4	13.0±0.4	7.5±0.4	20.0±0.3	44.0±0.5	8.54	3.141	120	185	277
EQxx-500320150-xxx				15.0±0.4	9.5±0.4			9.34		110	169	253
EQxx-500320156-xxx				15.6±0.4	10.1±0.4			9.54		107	165	248
EQxx-500320160-xxx				16.0±0.4	10.5±0.4			9.74		105	162	243
EQxx-500320170-xxx				17.0±0.4	11.5±0.4			10.14		101	156	233
EQxx-500320175-xxx				17.5±0.4	12.0±0.4			10.34		99	152	229
EQxx-500320180-xxx				18.0±0.4	12.5±0.4			10.54		97	150	224
EQxx-500320190-xxx				19.0±0.4	13.5±0.4			10.94		94	144	216
EQxx-500320200-xxx				20.0±0.4	14.5±0.4			11.34		90	139	208
EQxx-500320210-xxx				21.0±0.4	15.5±0.4			11.74		87	134	202
EQxx-500320230-xxx				23.0±0.4	17.5±0.4			12.54		82	126	189
EQxx-500320250-xxx				25.0±0.4	19.5±0.4			13.34		77	118	178

Please refer to individual part datasheet for magnetic performance curves. Further magnetic dimensions, core weight and packaging information is also available on part datasheet.

"C" & "D" dimension can be customized.

Coating is available, contact sales representative for further details.



**PQ Core Part Number List, available in Sendust(MS), Fluxsan™(FS) and High-Flux™(HF) materials from 21mm to 51mm.**

Part Number	Unit	Physical Dimensions						Effective Magnetic Path Length Le (cm)	Effective Magnetic Cross Section Ae (cm <sup>2</sup> )	A <sub>L</sub> -Value (nH/N <sup>2</sup> ) Reference Permeability		
		A	B	C	D	E	F			26u	40u	60u
PQXX-213140081-XXX	(mm)	21.3±0.41	14.0±0.41	8.10±0.20	5 min	8.8±0.41	17.6 min	3.76	0.619	54	83	124
PQXX-213140101-XXX	(mm)			10.10±0.20	7 min					45	69	103
Part Number	Unit	Physical Dimensions						Effective Magnetic Path Length Le (cm)	Effective Magnetic Cross Section Ae (cm <sup>2</sup> )	A <sub>L</sub> -Value (nH/N <sup>2</sup> ) Reference Permeability		
		A	B	C	D	E	F			26u	40u	60u
PQXX-272190051-XXX	(mm)	27.2±0.46	19.0±0.46	5.10±0.20	1.2 min	12.0±0.46	22.05 min	2.94	1.05	117	180	269
PQXX-272190059-XXX	(mm)			5.94±0.20	3.4 min					85	130	196
PQXX-273190101-XXX	(mm)	27.3±0.46	19.0±0.46	10.10±0.20	5.6 min	12.0±0.46	22.05 min	4.5	1.21	88	135	203
PQXX-273190124-XXX	(mm)			12.35±0.20	7.9 min					72	111	167
Part Number	Unit	Physical Dimensions						Effective Magnetic Path Length Le (cm)	Effective Magnetic Cross Section Ae (cm <sup>2</sup> )	A <sub>L</sub> -Value (nH/N <sup>2</sup> ) Reference Permeability		
		A	B	C	D	E	F			26u	40u	60u
PQXX-330220059-XXX	(mm)	33.0±0.51	22.0±0.51	5.94±0.20	3.4 min	13.5±0.51	27.0 min	3.44	1.09	104	159	239
PQXX-330220103-XXX	(mm)			10.30±0.20	5.6 min					99	152	228
PQXX-330220152-XXX	(mm)			15.15±0.20	10.5 min					73	112	169
Part Number	Unit	Physical Dimensions						Effective Magnetic Path Length Le (cm)	Effective Magnetic Cross Section Ae (cm <sup>2</sup> )	A <sub>L</sub> -Value (nH/N <sup>2</sup> ) Reference Permeability		
		A	B	C	D	E	F			26u	40u	60u
PQXX-361260174-XXX	(mm)	36.0±0.61	26.0±0.51	17.35±0.30	12.35 min	14.4±0.51	31.5 min	8.61	1.9	72	111	166
Part Number	Unit	Physical Dimensions						Effective Magnetic Path Length Le (cm)	Effective Magnetic Cross Section Ae (cm <sup>2</sup> )	A <sub>L</sub> -Value (nH/N <sup>2</sup> ) Reference Permeability		
		A	B	C	D	E	F			26u	40u	60u
PQXX-415280199-XXX	(mm)	41.5±0.71	28.0±0.61	19.90±0.30	14.55 min	14.9±0.61	36.4 min	10.2	2.01	64	99	149
Part Number	Unit	Physical Dimensions						Effective Magnetic Path Length Le (cm)	Effective Magnetic Cross Section Ae (cm <sup>2</sup> )	A <sub>L</sub> -Value (nH/N <sup>2</sup> ) Reference Permeability		
		A	B	C	D	E	F			26u	40u	60u
PQXX-510320250-XXX	(mm)	51.0±0.71	32.0±0.61	25.00±0.30	17.75 min	20.2±0.71	43.3 min	11.3	3.28	95	146	219

Please refer to individual part datasheet for magnetic performance curves. Further magnetic dimensions, core weight and packaging information is also available on part datasheet.

"C" & "D" dimension can be customized.

Coating is available, contact sales representative for further details.

Old Part No.	New Part No.
A-050056-2	MP-050125-2
A-051027-2	MP-050060-2
A-052012-2	MP-050026-2
A-053006-2	MP-050014-2
A-057008-2	MP-080014-2
A-059043-2	MP-090060-2
A-060019-2	MP-090026-2
A-062010-2	MP-090014-2
A-066032-2	MP-106026-2
A-068018-2	MP-106014-2
A-071065-2	MP-132060-2
A-073028-2	MP-132026-2
A-074015-2	MP-132014-2
A-076056-2	MP-141060-2
A-078024-2	MP-141026-2
A-080013-2	MP-141014-2
A-083081-2	MP-157060-2
A-085035-2	MP-157026-2
A-086019-2	MP-157014-2
A-087059-2	MP-184026-2
A-088032-2	MP-184014-2
A-089178-2	MP-185125-2
A-090086-2	MP-185060-2
A-091037-2	MP-185026-2
A-092020-2	MP-185014-2
A-094033-2	MP-225026-2
A-096018-2	MP-225014-2
A-106073-2	MP-200060-2
A-109156-2	MP-225125-2
A-123068-2	MP-300060-2
A-124030-2	MP-300026-2
A-125112-2	MP-400060-2
A-126040-2	MP-401026-2
A-127259-2	MP-520125-2
A-128124-2	MP-520060-2
A-129054-2	MP-520026-2
A-134103-8	MP-026125-8
A-135050-8	MP-026060-8
A-137052-8	MP-031125-8
A-138025-8	MP-031060-8
A-143067-2	MP-050147-2
A-144081-2	MP-080147-2
A-145185-2	MP-106147-2
A-147106-2	MP-090147-2
A-148150-2	MP-130147-2
A-149093-2	MP-135147-2
A-150138-2	MP-141147-2
A-151198-2	MP-157147-2
A-152330-2	MP-184147-2
A-153210-2	MP-185147-2
A-154179-2	MP-200147-2
A-155185-2	MP-225147-2

Old Part No.	New Part No.
A-156167-2	MP-300147-2
A-157268-2	MP-400147-2
A-158304-2	MP-520147-2
A-162129-2	MP-131147-2
A-166151-2	MP-131173-2
A-172079-2	MP-050173-2
A-173096-2	MP-080173-2
A-174124-2	MP-090173-2
A-175217-5	MP-106173-2
A-176176-2	MP-130173-2
A-177109-2	MP-135173-2
A-178162-2	MP-141173-2
A-179233-2	MP-157173-2
A-180390-2	MP-184173-2
A-181210-2	MP-200173-2
A-182218-2	MP-225173-2
A-183197-2	MP-300173-2
A-184316-2	MP-400173-2
A-185358-2	MP-520173-2
A-187010-2	MP-068014-2
A-188019-2	MP-068026-2
A-189043-2	MP-068060-2
A-190089-2	MP-068125-2
A-193105-2	MP-068147-2
A-194123-2	MP-068173-2
A-195246-2	MP-185173-2
A-197109-2	MP-131125-2
A-200170-8	MP-026205-8
A-201086-8	MP-031205-8
A-202109-8	MP-038205-8
A-203088-2	MP-044205-2
A-204093-2	MP-050205-2
A-205146-2	MP-068205-2
A-206068-2	MP-080125-2
A-207113-2	MP-080205-2
A-208147-2	MP-090205-2
A-209257-2	MP-106205-2
A-210180-2	MP-131205-2
A-211208-2	MP-130205-2
A-212130-2	MP-135205-2
A-213192-2	MP-141205-2
A-214276-2	MP-157205-2
A-215462-2	MP-184205-2
A-216292-2	MP-185205-2
A-217249-2	MP-200205-2
A-218259-2	MP-225205-2
A-219233-2	MP-300205-2
A-222144-8	MP-026173-8
A-223073-8	MP-031173-8
A-224122-8	MP-026147-8
A-225062-8	MP-031147-8
A-238092-2	MP-040173-2

Old Part No.	New Part No.
A-239078-2	MP-040147-2
A-240084-8	MP-038160-8
A-244092-8	MP-038173-8
A-245078-8	MP-038147-8
A-246066-8	MP-038125-8
A-247032-8	MP-038060-8
A-248014-8	MP-038026-8
A-249007-8	MP-038014-8
A-250053-8	MP-039125-8
A-251074-2	MP-044173-2
A-252063-2	MP-044147-2
A-253053-2	MP-044125-2
A-254168-2	MP-157125-2
A-255026-2	MP-044060-2
A-256011-2	MP-044026-2
A-257006-2	MP-044014-2
A-262123-2	MP-065205-2
A-263104-2	MP-065173-2
A-264088-2	MP-065147-2
A-266036-2	MP-065060-2
A-267015-2	MP-065026-2
A-268008-2	MP-065014-2
A-271087-2	MP-080160-2
A-272173-2	MP-092205-2
A-281072-2	MP-065125-2
A-285092-2	MP-065160-2
A-291061-2	MP-130060-2
A-292066-2	MP-040125-2
A-298028-2	MP-130026-2
A-300115-2	MP-090160-2
A-301072-2	MP-050160-2
A-302201-2	MP-106160-2
A-303163-2	MP-130160-2
A-304101-2	MP-135160-2
A-305150-2	MP-141160-2
A-306215-2	MP-157160-2
A-307032-2	MP-040060-2
A-308084-2	MP-040160-2
A-309105-2	MP-040205-2
A-310090-2	MP-090125-2
A-324117-2	MP-141125-2
A-325360-2	MP-184160-2
A-326228-2	MP-185160-2
A-327195-2	MP-200160-2
A-328200-2	MP-225160-2
A-330170-2	MP-107173-2
A-331054-8	MP-027125-8
A-335016-2	MP-300014-2
A-338066-8	MP-031160-8
A-339011-8	MP-031026-8
A-340006-8	MP-031014-8
A-341014-2	MP-040026-2

# Part Number Cross Reference - Old/New



Old Part No.	New Part No.
A-342007-2	MP-040014-2
A-344014-2	MP-130014-2
A-345038-2	MP-135060-2
A-346016-2	MP-135026-2
A-347009-2	MP-135014-2
A-348032-2	MP-200026-2
A-349017-2	MP-200014-2
A-350005-8	MP-018014-8
A-351009-8	MP-018026-8
A-352020-8	MP-018060-8
A-353042-8	MP-018125-8
A-354049-8	MP-018147-8
A-355053-8	MP-018160-8
A-356057-8	MP-018173-8
A-357068-8	MP-018205-8
A-358083-8	MP-018250-8
A-362108-8	MP-027250-8
A-363206-8	MP-026250-8
A-364104-8	MP-031250-8
A-365132-8	MP-038250-8
A-366132-2	MP-040250-2
A-367106-2	MP-044250-2
A-368112-2	MP-050250-2
A-369144-2	MP-065250-2
A-370178-2	MP-068250-2
A-371136-2	MP-080250-2
A-372180-2	MP-090250-2
A-373314-2	MP-106250-2
A-374254-2	MP-130250-2
A-430026-2	MP-520014-2
A-438281-2	MP-184125-2
A-439012-2	MP-092014-2
A-440022-2	MP-092026-2
A-441051-2	MP-092060-2
A-442105-2	MP-092125-2
A-443124-2	MP-092147-2
A-444135-2	MP-092160-2
A-445146-2	MP-092173-2
A-446211-2	MP-092250-2
A-453113-8	MP-028205-8
A-460026-8	MP-027060-8
A-461069-8	MP-027160-8
A-462089-8	MP-027205-8
A-464064-8	MP-027147-8
A-465075-8	MP-027173-8
A-467004-8	MP-015014-8
A-468007-8	MP-015026-8
A-469017-8	MP-015060-8
A-470035-8	MP-015125-8
A-471041-8	MP-015147-8
A-472045-8	MP-015160-8
A-473048-8	MP-015173-8

Old Part No.	New Part No.
A-474057-8	MP-015205-8
A-475070-8	MP-015250-8
A-479026-8	MP-014125-8
A-480031-8	MP-014147-8
A-481033-8	MP-014160-8
A-482036-8	MP-014173-8
A-483052-8	MP-014250-8
A-488075-2	MP-225060-2
A-495106-8	MP-039250-8
A-496084-8	MP-039205-8
A-497074-8	MP-039173-8
A-498068-8	MP-039160-8
A-499063-8	MP-039147-8
A-500025-8	MP-039060-8
A-501011-8	MP-039026-8
A-502006-8	MP-039014-8
A-511014-2	MP-080026-2
A-512082-8	MP-025205-8
A-520052-8	MP-025125-8
A-522043-8	MP-014205-8
A-525100-8	MP-025250-8
A-526069-8	MP-025173-8
A-527064-8	MP-025160-8
A-528058-8	MP-025147-8
A-529024-8	MP-025060-8
A-530010-8	MP-025026-8
A-531006-8	MP-025014-8
A-534138-8	MP-028250-8
A-535095-8	MP-028173-8
A-536089-8	MP-028160-8
A-537081-8	MP-028147-8
A-538070-8	MP-028125-8
A-539033-8	MP-028060-8
A-540014-8	MP-028026-8
A-541008-8	MP-028014-8
A-542228-2	MP-400125-2
A-548127-2	MP-130125-2
A-559114-2	MP-068160-2
A-585079-2	MP-135125-2
A-630012-8	MP-026014-8
A-638132-8	MP-026160-8
A-639021-8	MP-026026-8
A-640012-2	MP-131014-2
A-641022-2	MP-131026-2
A-642051-2	MP-131060-2
A-643136-2	MP-131160-2
A-644213-2	MP-131250-2
A-645135-2	MP-132125-2
A-646158-2	MP-132147-2
A-647172-2	MP-132160-2
A-648186-2	MP-132173-2
A-649215-2	MP-132205-2

Old Part No.	New Part No.
A-650269-2	MP-132250-2
A-651022-2	MP-401014-2
A-652092-2	MP-401060-2
A-653192-2	MP-401125-2
A-654226-2	MP-401147-2
A-655246-2	MP-401160-2
A-656266-2	MP-401173-2
A-658026-2	MP-400014-2
A-659047-2	MP-400026-2
A-660292-2	MP-400160-2
A-661332-2	MP-520160-2
A-662036-2	MP-521014-2
A-663068-2	MP-521026-2
A-664156-2	MP-521060-2
A-665325-2	MP-521125-2
A-666382-2	MP-521147-2
A-667416-2	MP-521160-2
A-668450-2	MP-521173-2
A-670068-2	MP-044160-2
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A-675011-8	MP-027026-8
A-676014-2	MP-107014-2
A-677026-2	MP-107026-2
A-678059-2	MP-107060-2
A-679123-2	MP-107125-2
A-680145-2	MP-107147-2
A-681157-2	MP-107160-2
A-682197-2	MP-107205-2
A-683246-2	MP-107250-2
A-685182-2	MP-300160-2
A-710032-2	MP-226014-2
A-711060-2	MP-226026-2
A-712138-2	MP-226060-2
A-713287-2	MP-226125-2
A-714338-2	MP-226147-2
A-715152-2	MP-200125-2
A-716368-2	MP-226160-2
A-717398-2	MP-226173-2
A-718460-2	MP-226205-2
A-735020-2	MP-301014-2
A-736037-2	MP-301026-2
A-737085-2	MP-301060-2
A-740178-2	MP-301125-2
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A-743246-2	MP-301173-2
A-744284-2	MP-301205-2
A-759135-2	MP-184060-2
A-848032-2	MP-080060-2
A-866142-2	MP-300125-2
A-894075-2	MP-106060-2
A-930157-1	MP-106125-2



CSC P/N	MA P/N
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BK5315-040	BFS-0503015-040
BK5315-060	BFS-0503015-060
BK5320-026	BFS-0503020-026
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CH-039160	HF-015160-8
CH-046026	HF-018026-8
CH-046060	HF-018060-8
CH-046125	HF-018125-8
CH-046147	HF-018147-8

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CH-063060	HF-025060-8
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CH-172026	HF-068026-2
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CH-172125	HF-068125-2
CH-172147	HF-068147-2
CH-172160	HF-068160-2

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CH-203060	HF-080060-2
CH-203125	HF-080125-2
CH-203147	HF-080147-2
CH-203160	HF-080160-2
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CH-270160	HF-106160-2
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CH-330060	HF-130060-2
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CH-330160	HF-130160-2
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CH-343060	HF-135060-2
CH-343125	HF-135125-2
CH-343147	HF-135147-2
CH-343160	HF-135160-2
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CH-571060	HF-226060-2
CH-571125	HF-226125-2
CH-571147	HF-226147-2
CH-571160	HF-226160-2
CH-572026	HF-225026-2

# Part Number Cross Reference - CSC/Micrometals APC



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CH-572060	HF-225060-2
CH-572125	HF-225125-2
CH-572147	HF-225147-2
CH-572160	HF-225160-2
CH-777026	HF-300026-2
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CK-097090	FS-038090-8
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CK-400060	FS-157060-2
CK-400075	FS-157075-2
CK-400090	FS-157090-2

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CK-468026	FS-185026-2
CK-468060	FS-185060-2
CK-468075	FS-185075-2
CK-468090	FS-185090-2
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CK-508060	FS-200060-2
CK-508075	FS-200075-2
CK-508090	FS-200090-2
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CM-039173	MP-015173-8
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CM-063125	MP-025125-8
CM-063147	MP-025147-8
CM-063160	MP-025160-8
CM-063173	MP-025173-8
CM-063200	MP-025205-8



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CM-066060	MP-027060-8
CM-066125	MP-027125-8
CM-066147	MP-027147-8
CM-066160	MP-027160-8
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CM-127060	MP-050060-2
CM-127125	MP-050125-2
CM-127147	MP-050147-2
CM-127160	MP-050160-2

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CM-127200	MP-050205-2
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CM-343160	MP-135160-2
CM-343173	MP-135173-2
CM-343200	MP-135205-2
CM-358026	MP-141026-2
CM-358060	MP-141060-2
CM-358125	MP-141125-2

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CM-358160	MP-141160-2
CM-358173	MP-141173-2
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CS-035125	MS-014125-8
CS-039060	MS-015060-8
CS-039075	MS-015075-8
CS-039090	MS-015090-8
CS-039125	MS-015125-8

# Part Number Cross Reference - CSC/Micrometals APC



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CS-046075	MS-018075-8
CS-046090	MS-018090-8
CS-046125	MS-018125-8
CS-063060	MS-025060-8
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ES1908A090	EMS-0190805-090
ES2510A014	EMS-0251007-014
ES2510A026	EMS-0251007-026
ES2510A060	EMS-0251007-060
ES2510A075	EMS-0251007-075
ES2510A090	EMS-0251007-090
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ES3515A026	EMS-0351409-026
ES3515A060	EMS-0351409-060
ES3515A075	EMS-0351409-075
ES3515A090	EMS-0351409-090
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ES4117A090	EMS-0411713-090
ES4321A014	EMS-0432111-014
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ES4321A060	EMS-0432111-060
ES4321A075	EMS-0432111-075
ES4321A090	EMS-0432111-090
ES4321B014	EMS-0432115-014
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ES4321B060	EMS-0432115-060
ES4321B075	EMS-0432115-075
ES4321B090	EMS-0432115-090
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ES4321C026	EMS-0432120-026
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ES4321C075	EMS-0432120-075
ES4321C090	EMS-0432120-090
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ES5528A090	EMS-0552821-090
ES5528B014	EMS-0552825-014
ES5528B026	EMS-0552825-026
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ES6533A075	EMS-0653327-075
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ES7228A075	EMS-0722819-075
ES7228A090	EMS-0722819-090
ES8038A014	EMS-0803820-014
ES8038A026	EMS-0803820-026
ES8038A060	EMS-0803820-060
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ES8038A090	EMS-0803820-090

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00K1207E090	EMS-0130604-090
00K1808E014	EMS-0190805-014
00K1808E026	EMS-0190805-026
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00K1808E090	EMS-0190805-090
00K2510E014	EMS-0251007-014
00K2510E026	EMS-0251007-026
00K2510E060	EMS-0251007-060
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00K2510E090	EMS-0251007-090
00K3007E014	EMS-0301507-014
00K3007E026	EMS-0301507-026
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00K4017E026	EMS-0432111-026
00K4017E060	EMS-0432111-060
00K4017E075	EMS-0432111-075
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00K4020E026	EMS-0432115-026
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00K4317E026	EMS-0411713-026
00K4317E060	EMS-0411713-060
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Mag Inc P/N	MA P/N
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00K6527E026	EMS-0653327-026
00K6527E060	EMS-0653327-060
00K6527E075	EMS-0653327-075
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00K7228E060	EMS-0722819-060
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00K8020E060	EMS-0803820-060
00K8020E075	EMS-0803820-075
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55017-A2	MP-025205-8
55018-A2	MP-025160-8
55019-A2	MP-025147-8
55020-A2	MP-025125-8
55021-A2	MP-025060-8
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55053-A2	MP-050014-2
55059-A2	MP-090060-2
55071-A2	MP-130060-2
55076-A2	MP-141060-2
55082-A2	MP-185173-2
55083-A2	MP-157060-2
55086-A2	MP-185205-2
55087-A2	MP-185160-2
55088-A2	MP-185147-2
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55092-A2	MP-185014-2
55103-A2	MP-225173-2

Mag Inc P/N	MA P/N
55106-A2	MP-225205-2
55107-A2	MP-225160-2
55108-A2	MP-225147-2
55109-A2	MP-225125-2
55110-A2	MP-225060-2
55111-A2	MP-225026-2
55112-A2	MP-225014-2
55114-A2	MP-065173-2
55117-A2	MP-065205-2
55118-A2	MP-065160-2
55119-A2	MP-065147-2
55120-A2	MP-065125-2
55121-A2	MP-065060-2
55122-A2	MP-065026-2
55123-A2	MP-065014-2
55124-A2	MP-044173-2
55127-A2	MP-044205-2
55128-A2	MP-044160-2
55129-A2	MP-044147-2
55130-A2	MP-044125-2
55131-A2	MP-044060-2
55132-A2	MP-044026-2
55133-A2	MP-044014-2
55134-AY	MP-014173-8
55137-AY	MP-014205-8
55138-AY	MP-014160-8
55139-AY	MP-014147-8
55140-AY	MP-014125-8
55144-A2	MP-015173-8
55147-A2	MP-015205-8
55148-A2	MP-015160-8
55149-A2	MP-015147-8
55150-A2	MP-015125-8
55174-AY	MP-018173-8
55177-AY	MP-018205-8
55178-AY	MP-018160-8
55179-AY	MP-018147-8
55180-AY	MP-018125-8
55181-A2	MP-018060-8
55190-A2	MP-226014-2
55191-A2	MP-226026-2
55192-A2	MP-226060-2
55195-A2	MP-226125-2
55196-A2	MP-226147-2
55197-A2	MP-226160-2
55198-A2	MP-226173-2
55199-A2	MP-226205-2
55200-A2	MP-080173-2
55203-A2	MP-080205-2
55204-A2	MP-080160-2
55205-A2	MP-080147-2
55206-A2	MP-080125-2
55208-A2	MP-080026-2
55209-A2	MP-080014-2
55234-A2	MP-027173-8
55237-A2	MP-027205-8
55238-A2	MP-027160-8
55239-A2	MP-027147-8
55240-A2	MP-027125-8
55241-A2	MP-027060-8

# Part Number Cross Reference - Mag Inc./Micrometals APC



Mag Inc P/N	MA P/N
55242-A2	MP-027026-8
55243-A2	MP-027014-8
55248-A2	MP-157173-2
55251-A2	MP-157205-2
55252-A2	MP-157160-2
55253-A2	MP-157147-2
55254-A2	MP-157125-2
55256-A2	MP-157026-2
55257-A2	MP-157014-2
55264-A3	MP-026173-8
55267-A2	MP-026205-8
55268-A2	MP-026160-8
55269-A2	MP-026147-8
55270-A2	MP-026125-8
55271-A2	MP-026060-8
55272-A2	MP-026026-8
55273-A2	MP-026014-8
55274-A2	MP-039173-8
55277-A2	MP-039205-8
55278-A2	MP-039160-8
55279-A2	MP-039147-8
55280-A2	MP-039125-8
55281-A2	MP-039060-8
55282-A2	MP-039026-8
55283-A2	MP-039014-8
55284-A2	MP-038173-8
55287-A2	MP-038205-8
55288-A2	MP-038160-8
55289-A2	MP-038147-8
55290-A2	MP-038125-8
55291-A2	MP-038060-8
55292-A2	MP-038026-8
55293-A2	MP-038014-8
55304-A2	MP-090173-2
55307-A2	MP-090205-2
55308-A2	MP-090160-2
55309-A2	MP-090147-2
55310-A2	MP-090125-2
55312-A2	MP-090026-2
55313-A2	MP-090014-2
55318-A3	MP-141173-2
55321-A2	MP-141205-2
55322-A2	MP-141160-2
55323-A2	MP-141147-2
55324-A2	MP-141125-2
55326-A2	MP-141026-2
55327-A2	MP-141014-2
55344-A2	MP-092173-2
55347-A2	MP-092205-2
55348-A2	MP-092160-2
55349-A2	MP-092147-2
55350-A2	MP-092125-2
55351-A2	MP-092060-2
55352-A2	MP-092026-2
55353-A2	MP-092014-2
55374-A2	MP-068173-2
55377-A2	MP-068205-2
55378-A2	MP-068160-2
55379-A2	MP-068147-2
55380-A2	MP-068125-2

Mag Inc P/N	MA P/N
55381-A2	MP-068060-2
55382-A2	MP-068026-2
55383-A2	MP-068014-2
55404-A2	MP-028173-8
55407-A2	MP-028205-8
55408-A2	MP-028160-8
55409-A2	MP-028147-8
55410-A2	MP-028125-8
55411-A2	MP-028060-8
55412-A2	MP-028026-8
55413-A2	MP-028014-8
55432-A2	MP-184173-2
55435-A2	MP-184205-2
55436-A2	MP-184160-2
55437-A2	MP-184147-2
55438-A2	MP-184125-2
55439-A2	MP-184060-2
55440-A2	MP-184026-2
55441-A2	MP-184014-2
55542-A2	MP-130173-2
55545-A2	MP-130205-2
55546-A2	MP-130160-2
55547-A2	MP-130147-2
55548-A2	MP-130125-2
55550-A2	MP-130026-2
55551-A2	MP-130014-2
55579-A1	MP-135173-2
55582-A2	MP-135205-2
55583-A2	MP-135160-2
55584-A2	MP-135147-2
55585-A2	MP-135125-2
55586-A2	MP-135060-2
55587-A2	MP-135026-2
55588-A2	MP-135014-2
55709-A2	MP-200173-2
55712-A2	MP-200205-2
55713-A2	MP-200160-2
55714-A2	MP-200147-2
55715-A2	MP-200125-2
55716-A2	MP-200060-2
55717-A2	MP-200026-2
55718-A2	MP-200014-2
55848-A2	MP-080060-2
55866-A2	MP-300125-2
55867-A2	MP-300060-2
55868-A2	MP-300026-2
55869-A2	MP-300014-2
55894-A2	MP-106060-2
55906-A2	MP-301125-2
55907-A2	MP-301060-2
55908-A2	MP-301026-2
55909-A2	MP-301014-2
55924-A5	MP-106173-2
55927-A2	MP-106205-2
55928-A2	MP-106160-2
55929-A2	MP-106147-2
55930-A1	MP-106125-2
55932-A2	MP-106026-2
55933-A2	MP-106014-2
58018-A2	HF-025160-8

Mag Inc P/N	MA P/N
58019-A2	HF-025147-8
58020-A2	HF-025125-8
58021-A2	HF-025060-8
58022-A2	HF-025026-8
58023-A2	HF-025014-8
58028-A2	HF-031160-8
58029-A2	HF-031147-8
58030-A2	HF-031125-8
58031-A2	HF-031060-8
58032-A2	HF-031026-8
58033-A2	HF-031014-8
58038-A2	HF-040160-2
58039-A2	HF-040147-2
58040-A2	HF-040125-2
58041-A2	HF-040060-2
58042-A2	HF-040026-2
58043-A2	HF-040014-2
58048-A2	HF-050160-2
58049-A2	HF-050147-2
58050-A2	HF-050125-2
58051-A2	HF-050060-2
58052-A2	HF-050026-2
58053-A2	HF-050014-2
58059-A2	HF-090060-2
58071-A2	HF-130060-2
58076-A2	HF-141060-2
58083-A2	HF-157060-2
58089-A2	HF-185125-2
58090-A2	HF-185060-2
58091-A2	HF-185026-2
58092-A2	HF-185014-2
58109-A2	HF-225125-2
58110-A2	HF-225060-2
58111-A2	HF-225026-2
58112-A2	HF-225014-2
58118-A2	HF-065160-2
58119-A2	HF-065147-2
58120-A2	HF-065125-2
58121-A2	HF-065060-2
58122-A2	HF-065026-2
58123-A2	HF-065014-2
58128-A2	HF-044160-2
58129-A2	HF-044147-2
58130-A2	HF-044125-2
58131-A2	HF-044060-2
58132-A2	HF-044026-2
58133-A2	HF-044014-2
58190-A2	HF-226014-2
58191-A2	HF-226026-2
58192-A2	HF-226060-2
58195-A2	HF-226125-2
58204-A2	HF-080160-2
58205-A2	HF-080147-2
58206-A2	HF-080125-2
58208-A2	HF-080026-2
58209-A2	HF-080014-2
58238-A2	HF-027160-8
58239-A2	HF-027147-8
58240-A2	HF-027125-8
58241-A2	HF-027060-8

Mag Inc P/N	MA P/N
58242-A2	HF-027026-8
58243-A2	HF-027014-8
58252-A2	HF-157160-2
58253-A2	HF-157147-2
58254-A2	HF-157125-2
58256-A2	HF-157026-2
58257-A2	HF-157014-2
58268-A2	HF-026160-8
58269-A2	HF-026147-8
58270-A2	HF-026125-8
58271-A2	HF-026060-8
58272-A2	HF-026026-8
58273-A2	HF-026014-8
58278-A2	HF-039160-8
58279-A2	HF-039147-8
58280-A2	HF-039125-8
58281-A2	HF-039060-8
58282-A2	HF-039026-8
58283-A2	HF-039014-8
58288-A2	HF-038160-8
58289-A2	HF-038147-8
58290-A2	HF-038125-8
58291-A2	HF-038060-8
58292-A2	HF-038026-8
58293-A2	HF-038014-8
58308-A2	HF-090160-2
58309-A2	HF-090147-2
58310-A2	HF-090125-2
58312-A2	HF-090026-2
58313-A2	HF-090014-2
58322-A2	HF-141160-2
58323-A2	HF-141147-2
58324-A2	HF-141125-2
58326-A2	HF-141026-2
58327-A2	HF-141014-2
58348-A2	HF-092160-2
58349-A2	HF-092147-2
58350-A2	HF-092125-2
58351-A2	HF-092060-2
58352-A2	HF-092026-2
58353-A2	HF-092014-2
58378-A2	HF-068160-2
58379-A2	HF-068147-2
58380-A2	HF-068125-2
58381-A2	HF-068060-2
58382-A2	HF-068026-2
58383-A2	HF-068014-2
58408-A2	HF-028160-8
58409-A2	HF-028147-8
58410-A2	HF-028125-8
58411-A2	HF-028060-8
58412-A2	HF-028026-8
58413-A2	HF-028014-8
58438-A2	HF-184125-2
58439-A2	HF-184060-2
58440-A2	HF-184026-2
58441-A2	HF-184014-2
58546-A2	HF-130160-2
58547-A2	HF-130147-2
58548-A2	HF-130125-2

Mag Inc P/N	MA P/N
58550-A2	HF-130026-2
58551-A2	HF-130014-2
58583-A2	HF-135160-2
58584-A2	HF-135147-2
58585-A2	HF-135125-2
58586-A2	HF-135060-2
58587-A2	HF-135026-2
58588-A2	HF-135014-2
58715-A2	HF-200125-2
58716-A2	HF-200060-2
58717-A2	HF-200026-2
58718-A2	HF-200014-2
58848-A2	HF-080060-2
58866-A2	HF-300125-2
58867-A2	HF-300060-2
58868-A2	HF-300026-2
58869-A2	HF-300014-2
58894-A2	HF-106060-2
58906-A2	HF-301125-2
58907-A2	HF-301060-2
58908-A2	HF-301026-2
58909-A2	HF-301014-2
58928-A2	HF-106160-2
58929-A2	HF-106147-2
58930-A2	HF-106125-2
58932-A2	HF-106026-2
58933-A2	HF-106014-2
77020-A7	MS-025125-8
77021-A7	MS-025060-8
77030-A7	MS-031125-8
77031-A7	MS-031060-8
77040-A7	MS-040125-2
77041-A7	MS-040060-2
77050-A7	MS-050125-2
77051-A7	MS-050060-2
77054-A7	MS-050090-2
77055-A7	MS-050075-2
77059-A7	MS-090060-2
77071-A7	MS-130060-2
77076-A7	MS-141060-2
77083-A7	MS-157060-2
77089-A7	MS-185125-2
77090-A7	MS-185060-2
77091-A7	MS-185026-2
77093-A7	MS-185090-2
77094-A7	MS-185075-2
77109-A7	MS-225125-2
77110-A7	MS-225060-2
77111-A7	MS-225026-2
77120-A7	MS-065125-2
77121-A7	MS-065060-2
77130-A7	MS-044125-2
77131-A7	MS-044060-2
77140-A7	MS-014125-8
77141-A7	MS-014060-8
77150-A7	MS-015125-8
77151-A7	MS-015060-8
77154-A7	MS-015090-8
77155-A7	MS-015075-8
77180-A7	MS-018125-8

Mag Inc P/N	MA P/N
77181-A7	MS-018060-8
77184-A7	MS-018090-8
77185-A7	MS-018075-8
77191-A7	MS-226026-2
77192-A7	MS-226060-2
77193-A7	MS-226075-2
77194-A7	MS-226090-2
77195-A7	MS-226125-2
77206-A7	MS-080125-2
77210-A7	MS-080090-2
77211-A7	MS-080075-2
77213-A7	MS-225090-2
77214-A7	MS-225075-2
77224-A7	MS-065090-2
77225-A7	MS-065075-2
77240-A7	MS-027125-8
77241-A7	MS-027060-8
77244-A7	MS-027090-8
77245-A7	MS-027075-8
77254-A7	MS-157125-2
77256-A7	MS-157026-2
77258-A7	MS-157090-2
77259-A7	MS-157075-2
77270-A7	MS-026125-8
77271-A7	MS-026060-8
77280-A7	MS-039125-8
77281-A7	MS-039060-8
77290-A7	MS-038125-8
77291-A7	MS-038060-8
77294-A7	MS-038090-8
77295-A7	MS-038075-8
77310-A7	MS-090125-2
77312-A7	MS-090026-2
77314-A7	MS-090090-2
77315-A7	MS-090075-2
77324-A7	MS-141125-2
77326-A7	MS-141026-2
77328-A7	MS-141090-2
77329-A7	MS-141075-2
77334-A7	MS-044090-2
77335-A7	MS-044075-2
77350-A7	MS-092125-2
77351-A7	MS-092060-2
77352-A7	MS-092026-2
77354-A7	MS-092090-2
77355-A7	MS-092075-2
77380-A7	MS-068125-2
77381-A7	MS-068060-2
77384-A7	MS-068090-2
77385-A7	MS-068075-2
77410-A7	MS-028125-8
77411-A7	MS-028060-8
77414-A7	MS-028090-8
77415-A7	MS-028075-8
77438-A7	MS-184125-2
77439-A7	MS-184060-2
77440-A7	MS-184026-2
77442-A7	MS-184090-2
77443-A7	MS-184075-2
77444-A7	MS-014090-8



# Part Number Cross Reference - Mag Inc./Micrometals APC



Mag Inc P/N	MA P/N
77445-A7	MS-014075-8
77548-A7	MS-130125-2
77550-A7	MS-130026-2
77552-A7	MS-130090-2
77553-A7	MS-130075-2
77585-A7	MS-135125-2
77586-A7	MS-135060-2
77587-A7	MS-135026-2
77589-A7	MS-135090-2
77590-A7	MS-135075-2
77715-A7	MS-200125-2
77716-A7	MS-200060-2
77717-A7	MS-200026-2
77719-A7	MS-200090-2
77720-A7	MS-200075-2
77824-A7	MS-025090-8
77825-A7	MS-025075-8
77834-A7	MS-031090-8
77835-A7	MS-031075-8
77844-A7	MS-040090-2
77845-A7	MS-040075-2
77848-A7	MS-080060-2
77868-A7	MS-300026-2
77874-A7	MS-026090-8
77875-A7	MS-026075-8
77884-A7	MS-039090-8
77885-A7	MS-039075-8
77894-A7	MS-106060-2
77908-A7	MS-301026-2
77930-A7	MS-106125-2
77932-A7	MS-106026-2
77934-A7	MS-106090-2
77935-A7	MS-106075-2
78021-A7	FS-025060-8
78022-A7	FS-025026-8
78023-A7	FS-025014-8
78031-A7	FS-031060-8
78032-A7	FS-031026-8
78033-A7	FS-031014-8
78041-A7	FS-040060-2
78042-A7	FS-040026-2
78043-A7	FS-040014-2
78051-A7	FS-050060-2
78052-A7	FS-050026-2
78053-A7	FS-050014-2
78054-A7	FS-050090-2
78055-A7	FS-050075-2
78059-A7	FS-090060-2
78071-A7	FS-130060-2
78076-A7	FS-141060-2
78083-A7	FS-157060-2
78090-A7	FS-185060-2
78091-A7	FS-185026-2
78092-A7	FS-185014-2
78094-A7	FS-185075-2
78110-A7	FS-225060-2
78111-A7	FS-225026-2
78112-A7	FS-225014-2
78121-A7	FS-065060-2
78122-A7	FS-065026-2

Mag Inc P/N	MA P/N
78123-A7	FS-065014-2
78131-A7	FS-044060-2
78132-A7	FS-044026-2
78133-A7	FS-044014-2
78141-A7	FS-014060-8
78151-A7	FS-015060-8
78154-A7	FS-015090-8
78155-A7	FS-015075-8
78181-A7	FS-018060-8
78184-A7	FS-018090-8
78185-A7	FS-018075-8
78190-A7	FS-226014-2
78191-A7	FS-226026-2
78192-A7	FS-226060-2
78193-A7	FS-226075-2
78194-A7	FS-226090-2
78208-A7	FS-080026-2
78209-A7	FS-080014-2
78210-A7	FS-080090-2
78211-A7	FS-080075-2
78213-A7	FS-225090-2
78214-A7	FS-225075-2
78224-A7	FS-065090-2
78225-A7	FS-065075-2
78241-A7	FS-027060-8
78242-A7	FS-027026-8
78243-A7	FS-027014-8
78244-A7	FS-027090-8
78245-A7	FS-027075-8
78256-A7	FS-157026-2
78257-A7	FS-157014-2
78258-A7	FS-157090-2
78259-A7	FS-157075-2
78271-A7	FS-026060-8
78272-A7	FS-026026-8
78273-A7	FS-026014-8
78281-A7	FS-039060-8
78282-A7	FS-039026-8
78283-A7	FS-039014-8
78291-A7	FS-038060-8
78292-A7	FS-038026-8
78293-A7	FS-038014-8
78294-A7	FS-038090-8
78295-A7	FS-038075-8
78312-A7	FS-090026-2
78313-A7	FS-090014-2
78314-A7	FS-090090-2
78315-A7	FS-090075-2
78326-A7	FS-141026-2
78327-A7	FS-141014-2
78328-A7	FS-141090-2
78329-A7	FS-141075-2
78334-A7	FS-044090-2
78335-A7	FS-044075-2
78351-A7	FS-092060-2
78352-A7	FS-092026-2
78353-A7	FS-092014-2
78354-A7	FS-092090-2
78355-A7	FS-092075-2
78381-A7	FS-068060-2

Mag Inc P/N	MA P/N
78382-A7	FS-068026-2
78383-A7	FS-068014-2
78384-A7	FS-068090-2
78385-A7	FS-068075-2
78411-A7	FS-028060-8
78412-A7	FS-028026-8
78413-A7	FS-028014-8
78414-A7	FS-028090-8
78415-A7	FS-028075-8
78439-A7	FS-184060-2
78440-A7	FS-184026-2
78441-A7	FS-184014-2
78442-A7	FS-184090-2
78443-A7	FS-184075-2
78444-A7	FS-014090-8
78445-A7	FS-014075-8
78550-A7	FS-130026-2
78551-A7	FS-130014-2
78552-A7	FS-130090-2
78553-A7	FS-130075-2
78586-A7	FS-135060-2
78587-A7	FS-135026-2
78588-A7	FS-135014-2
78589-A7	FS-135090-2
78590-A7	FS-135075-2
78716-A7	FS-200060-2
78717-A7	FS-200026-2
78718-A7	FS-200014-2
78719-A7	FS-200090-2
78720-A7	FS-200075-2
78824-A7	FS-025090-8
78825-A7	FS-025075-8
78834-A7	FS-031090-8
78835-A7	FS-031075-8
78844-A7	FS-040090-2
78845-A7	FS-040075-2
78848-A7	FS-080060-2
78867-A7	FS-300060-2
78868-A7	FS-300026-2
78869-A7	FS-300014-2
78874-A7	FS-026090-8
78875-A7	FS-026075-8
78884-A7	FS-039090-8
78885-A7	FS-039075-8
78894A7	FS-106060-2
78907-A7	FS-301060-2
78908-A7	FS-301026-2
78909-A7	FS-301014-2
78932-A7	FS-106026-2
78933-A7	FS-106014-2
78934-A7	FS-106090-2
78935-A7	FS-106075-2
79093-A7	FS-185090-2



## Inductor Design Software

Micrometals Inductor Design Calculator is FREE for registered users and is a web-based design tool intended to assist engineers in the selection of powder cores. It can be located on Micrometals APC website ([www.MicrometalsAPC.com](http://www.MicrometalsAPC.com)), after logging in the user can select from two different inductor applications:

- 1) DC inductors used in DC/DC converters
- 2) Power Factor Boost Inductor, commonly referred to as a PFC choke.

The software accepts the following user defined design requirements as inputs:

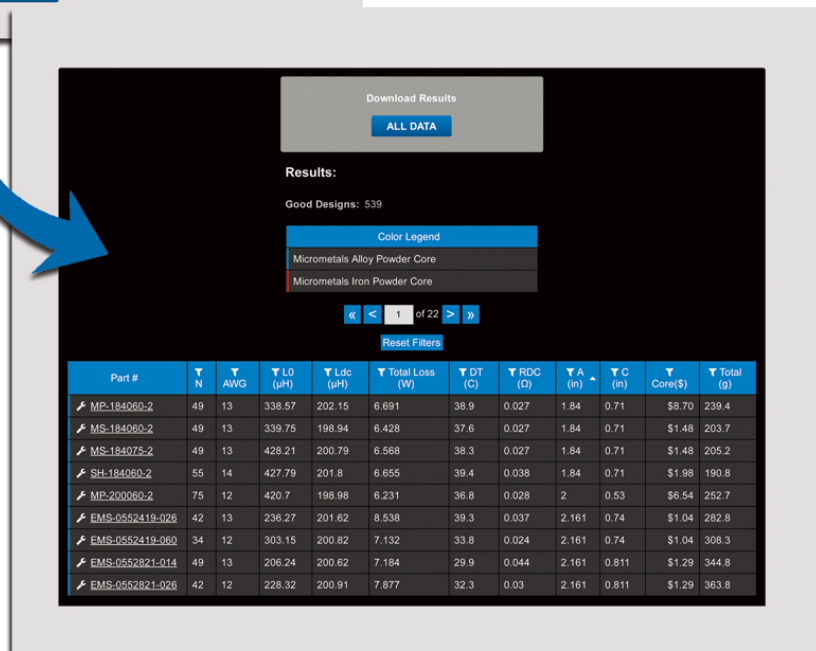
- Inductor Current
- Required Inductance at full Inductor Current
- Switching Frequency of the Converter
- Inductor Voltages during the "ON" and "OFF" times of the switch (for ripple current calculation of DC Inductors)
- RMS Input and DC Output Voltages (for ripple current calculation of PFC Boost Inductors)
- Core Geometry (Toroid or ECore)
- Core Stacking (Custom heights are possible)
- Preferred Toroid Winding technique (Fully Wound or Single Layer)
- Ambient Conditions
- Conductor choice (Cu/Al)
- Custom core stacks

## Design Software Outputs

The software will automatically calculate and display:

- Instantaneous Display number of Good Designs
- Part Number
- Approximate unit price
- Required Number of Turns
- Wire Size
- Winding Resistance, including Temperature and Skin Depth Effects
- Bpk - Peak AC Flux Density
- Inductance at Zero Current and Full Current
- Core Loss & Copper Loss
- Temperature Rise
- Temperature Dependent Resistance Calculation
- Core Dimensions, both bare core and wound core
- Conductor wire cost based on LME Calculation
- Energy Cost Included for "Cost of Ownership" Calculation

All designs results can be exported.



DESIGN SOFTWARE

**Inductor Design**  
Start New Design

Part Number:

N:

AWG:

Topology:

Peak Inductor Current (A):

V<sub>in</sub> RMS min:

V<sub>in</sub> RMS max:

V<sub>out</sub> DC:

f (Hz) - Switching:

f (Hz) - Fundamental:

**Inductor Analyzer**  
Optimize Existing Design

Stack:

Strands:

Advanced

Temp Rise Factor:

Energy Cost (for Loss \$):

Ambient Temp:

Continuous Use (for Loss \$):

Conductor Material:

Min % L<sub>pc</sub> / L<sub>0</sub> A:

Max % Window Fill, Toroid:

Max % Window Fill, E-Core:

Max Temp Rise (°C):

Max ID used ratio:

Max (B at I<sub>max</sub>) / B<sub>sat</sub>:

Max DT Aging:

Min Hrs to DT Aging:

## Inductor Analyzer

A new feature recently added to the Micrometals Inductor Design calculator is Inductor Analyzer. This feature allows users to take a wound core suggestion and customize or optimize for the users specific application goals.

Clicking the wrench tool to the left of the part suggestion will automatically transfer the winding information to a new page and launch the analyzer function. From this point it is possible to change number of turns, wire gauge or even consider alternate materials or core sizes and immediately output electrical and dimensional characteristics.

The Analyzer allows to evaluate changing:

- Part Number
- Turns
- Wire Guage
- Topology
- Peak Inductor Current
- Voltage In/Voltage Out
- Frequency (Switching and Fundamental)
- Core stacks or custom heights
- Multiple wire strands

Analyzer also allows adding design limits:

- Minimum inductance percentage at full load
- Maximum percent window fill
- Maximum temperature rise
- Maximum temperature

## Design Analyzer Outputs

Clicking the submit button will generate the following:

- I peak-peak
- Inductance at no load and full load
- DC resistance
- Core/copper/total loss
- Temperature rise
- Thermal aging check
- Core/Copper estimation
- Part and winding weight
- Core dimensions
- Wound core dimensions



Output			
I peak-peak (A):	5.914	Total Loss (W):	6.383
L (μH) @ 0 A <sub>dc</sub> :	339.75	DT (°C):	37.4 <span style="color: green;">OK</span>
L (μH) @ 14.1 A <sub>dc</sub> :	198.94	Thermal Aging Check :	No Aging <span style="color: gray;">🚧</span>
% ( L <sub>dc</sub> / L <sub>0</sub> ):	59 <span style="color: green;">OK</span>	Lifetime (hrs):	>1000000
R <sub>dc</sub> (Ω):	0.027	Full or Single Layer:	Full
R <sub>ac</sub> Factor:	2.3	ID Use Ratio:	0.45 <span style="color: red;">!</span>
Cu Loss (W):	2.835	% Window Fill:	32 <span style="color: green;">OK</span>
Bpk (G), fswitch:	603.256	Part Grams:	123.6
B (G) at I <sub>max</sub> :	4842.2 <span style="color: green;">OK</span>	Total Grams:	203.7
Core Loss (W):	3.548	Core \$:	\$1.48
		Core \$ + Cu \$:	\$2.31

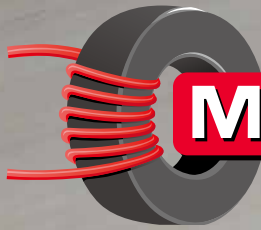
  

Mechanical			
Core Dim A (in):	1.84	Wound Length (mm):	49.28
Core Dim C Stack (in):	0.71	Wound Width (mm):	49.28
Ae (cm <sup>2</sup> ):	1.99	Wound Height (mm):	23.09
Le (cm):	10.743	Surface Area (cm <sup>2</sup> ):	82.63
Ve (cm <sup>3</sup> ):	21.3786	Mean Length Turn (cm):	6.96



		Micrometals Iron Powder Cores					Micrometals Alloy Powder Cores							
Material Designation	Iron Powder		200C Series			Sendust	High Frequency Sendust	Molypermalloy	FluxSan™	HI-FLUX™	Optilloy™ Series			
	Mix-2	Mix-8	Mix-52	Mix-66	Mix-70						Optilloy™ Original	Optilloy™ Core Loss	Optilloy™ DC Bias	Optilloy™ Economy
Material Type	Carbonyl	Reduced Carbonyl	Other Non-Carbonyl	60 Series Alloy	70 Series Alloy	9% Si	6% Al	2% Mo			Al	Al	Al	Al
						85% Fe	8% Fe	81% Ni	93.5% Fe	50% Ni	Fe	Fe	Fe	Fe
Permeability	10	35	75	66	100	14-160	26-125	14-205	14-90	14-160	14-125	26-125	26-90	26-90
Comparison made with:	10	35	75	66	100	60μ	60μ	60μ	60μ	60μ	60μ	60μ	60μ	60μ
<b>Saturation Flux Density</b>														
Bsat (G)	14,800	17,600	18,500	15,800	8,600	8,900	8,900	8,800	17,640	14,800	13,000	8,900	13,500	8,900
H at 50% μ (Oe)	1740	247	66	70	50	98.0	85.0	99.0	175.4	151.0	141.0	151.0	186.0	142.0
<b>Core Loss</b>														
60Hz, 5000 gauss	19.4	44.6	29.9	47.6	5.8	6.4	8.6	9.1	14.3	15.7	8.7	8.2	12.3	11.7
10kHz, 500 gauss	32.1	58.6	68.3	47.7	9.6	12.9	13.8	12.9	28.0	18.8	11.8	9.8	17.2	18.7
100 kHz, 140 gauss	19.1	31.6	58.1	17.3	13	12.9	10.5	12.6	28.1	27.8	15.9	8.7	16.2	16.4
1 MHz, 40 gauss	20.5	21.7	133.7	31.3	69.5	49.0	21.7	54.6	94.9	166.3	83.5	31.3	58.4	49.8
Shapes	Various	Various	Various	Various	T & E	Various	T	T	Various	T	T	T	T	T
Max Size Toroid (T)	165mm	165mm	165mm	165mm	165mm	197mm	154mm	154mm	197mm	154mm	197mm	154mm	154mm	154mm
Max Size E-Core (E)	210mm	210mm	210mm	210mm	155mm	120mm			120mm					
Max Size Block (B)	80mm	80mm	80mm	80mm	-	80mm			80mm					
Relative Price*	3-10	4-7	1-4	2-4	10-15	2-3	3-4	10-18	2-4	7-9	6-7	3-4	4-5	2-3

\*Pricing estimate relative to Micrometals least expensive iron powder material based on 25mm toroidal geometry.

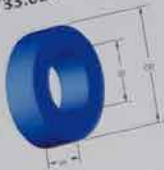


# MICROMETALS™

## POWDER CORE SOLUTIONS



1.300 in./33.02 mm OD Toroid



Typical Part Number: **MS - 130 125 - 2**

Material Type  
OD in 100th inches  
Reference Permeability  
Finish  
Area for Special Height (in XX.Xmm)

Magnetic Dimensions	
Ae	Effective Magnetic Cross Section 0.672 cm <sup>2</sup>
Le	Effective Magnetic Path Length 8.15 cm
Ve	Effective Core Volume 5.48 cm <sup>3</sup>
WA	Effective Window Area 2.93 cm <sup>2</sup>
SA	Minimum Surface Area 40.1 cm <sup>2</sup>
MLT	Mean Length Per Turn 4.74 cm

Physical Dimensions			
OD	Bare Core Nominal	33.02 mm	1.300 in.
	Coated Core (max)	33.83 mm	1.332 in.
ID	Bare Core Nominal	19.94 mm	0.785 in.
	Coated Core (min)	19.3 mm	0.760 in.
HI	Bare Core Nominal	10.67 mm	0.420 in.
	Coated Core (max)	11.61 mm	0.457 in.

Permeability	Part Numbers	SH High Frequency Sendust	MP Molypermalloy	Hi-Flux™ HF Nickel Iron	FluxSan™ FS Silicon Iron	Optilloy™ Material Series*		
						DC Optimized Core Loss	OD Optimized DC Bias	OE Optimized Economy
14μ	MS-10014-2	SH-20014-2	MP-10014-2	HF-10014-2	FS-10014-2	DC-10014-2	OD-10014-2	OE-10014-2
20μ	MS-20020-2	SH-20020-2	MP-20020-2	HF-20020-2	FS-20020-2	DC-20020-2	OD-20020-2	OE-20020-2
26μ	MS-26026-2	SH-26026-2	MP-26026-2	HF-26026-2	FS-26026-2	DC-26026-2	OD-26026-2	OE-26026-2
40μ	MS-40040-2	SH-40040-2	MP-40040-2	HF-40040-2	FS-40040-2	DC-40040-2	OD-40040-2	OE-40040-2
90μ	MS-90090-2	SH-90090-2	MP-90090-2	HF-90090-2	FS-90090-2	DC-90090-2	OD-90090-2	OE-90090-2

- ### EQ Core Applications
- AC Filter (Output Filter Inductor)
  - DC/DC Converter
  - Differential-Mode Filter for AC Input
  - Flyback Transformer Inductor
  - Power Factor Correction
  - Inductor for Resonant Circuit

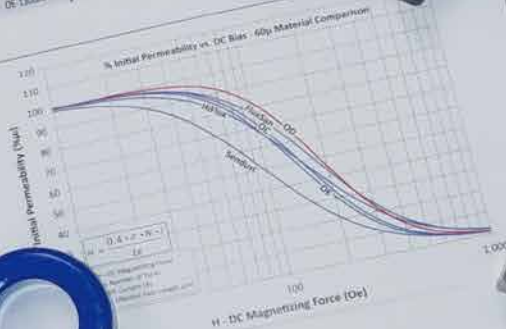
Part Number	Unit	A	B	C	D	E	F	Effective Magnetic Path Length Le (cm)	Effective Magnetic Cross Section Ae (cm <sup>2</sup> )	Al-Value (μH/V) Reference Permeability
EQxx-260260090-xxx	mm	36.0x0.5	26.0x0.3	9.0x0.7	3.0x0.3	14.4x0.2	6.11	1.908	26	40
EQxx-360260140-xxx	mm	36.0x0.5	26.0x0.3	16.0x0.7	10.0x0.3	14.4x0.2	6.11	1.908	96	149
EQxx-360260154-xxx	mm	36.0x0.5	26.0x0.3	15.4x0.3	11.4x0.3	14.4x0.2	6.11	1.908	73	112
EQxx-360260164-xxx	mm	36.0x0.5	26.0x0.3	15.4x0.3	12.4x0.3	14.4x0.2	6.11	1.908	68	105
EQxx-360260174-xxx	mm	36.0x0.5	26.0x0.3	17.4x0.3	13.4x0.3	14.4x0.2	6.11	1.908	85	100



### Optimized DC Bias

The new OD material, Optimized DC Bias, is optimized to provide superior DC Bias while maintaining low losses and be cost competitive. OD material is ideal for applications that require high saturation magnetization that may have traditionally used high flux materials like FluxSan or Hi-Flux.

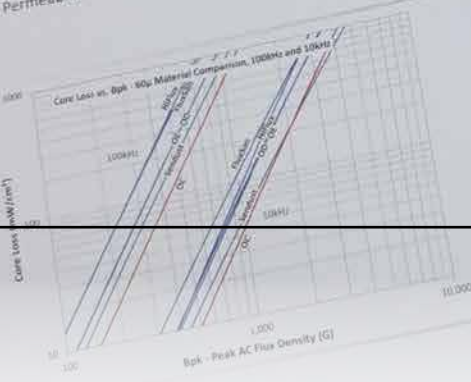
- Available in 50 sizes of Toroids from 3.5mm to 196mm
- Permeabilities from 14μ to 90μ



### Optimized Core Loss

The new OC material, Optimized Core Loss, is optimized to provide very low losses while maintaining great DC bias at an economical price. OC material is an economical alternative for applications that may have traditionally used Sendust or Molypermalloy materials.

- Available in 50 sizes of Toroids from 3.5mm to 196mm
- Permeabilities from 14μ to 25μ



Micrometals Alloy Powder Core Material Summary			
60μ 26.9mm Toroid Comparison			
Material Family	CL (mW/cc) 50kHz, 1kg	DC Bias 100 Oe	Cost (USD ~5k pricing)
OC - Optimized Core Loss	263	72.3%	0.69
OD - Optimized DC Bias	450	83.9%	0.77
HF - High Flux	678	69.2%	1.22
FS - FluxSan	678	76.5%	0.43
MS - Sendust	323	49.2%	0.27

**FS**

FluxSan™ (Silicon Iron) Powder Cores

Micrometals, Inc. formulated to provide superior performance in AC and DC applications. The new DC Bias material is an economical alternative to applications that require high saturation magnetization that may have traditionally used high flux materials like FluxSan or Hi-Flux.

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