MICROMETALS™

POWDER CORE SOLUTIONS

Iron Powder Products Catalog

Power Conversion Cores

- EV/AV OBC and Transformers
- Solar Power Inverters

Radio Frequency Cores

- Broadband Communications
- Audio Amplifiers

High Temperature Cores

- Switchmode Power Supplies
- GaN / SiC Applications

About Micrometals

For over 70 years, Micrometals Inc. has been an engineering driven company striving to exceed customer requirements for magnetic components. Micrometals' customized formulations of powdered metals, and their expertise at forming these materials into complex shapes for power applications, is trusted by the most respected names in power electronics. Micrometals is a privately held corporation which is headquartered in Anaheim, California. In addition to the U.S. headquarters, Micrometals has global manufacturing sites in China and global distribution partners. Micrometals offers application engineering and technical support from North America and China, as well as stocking warehouses located in the U.S., Europe and Hong Kong.

Performance to the CORE!

Your power products deserve the performance you designed into them. For more than 70 years Micrometals has been trusted to deliver the most reliable core products in the world.
For many customers there is simply no equivalent.

Our experienced team can help you at any phase of your project

Product Design to Prototype to Production

Our on-line Inductor Design Software can quickly provide you with readily available options for your application and our Inductor Analyzer can take that design and allow you to modify design parameters to optimize the solution. Our industry leading design tools, technical support and manufacturing capabilities can help you quickly move from design to production, with a solution that can be trusted to deliver consistent performance for decades!

Catalog Samples to Custom Prototypes

Contact Micrometals today to discuss your application and we'd be glad to provide catalog core samples for you to quickly test in your application. If you need wound components we can connect you with one of our preferred winding suppliers to assure you get high quality components quickly.

Need something a little more custom? Micrometals has extensive customization capabilities and decades of experience to help you develop design options and to find the right solution for every phase of your project.

Custom core shapes and assemblies

Many engineers know of our extensive catalog offering a wide variety of available shapes and sizes but we also provide custom core shapes and assemblies for engineers around the world. Our custom capabilities are unmatched and can help you optimize your design and deliver a very unique solution for your application, which would exceed anything commercially available.

Custom materials formulations

Micrometals has extensive experience in developing unique materials formulations for demanding applications. Whether your objective is performance, cost, efficiency, weight, Micrometals can develop a solution to meet all of your project requirements.

Prototype samples and testing

Have a new shape, concept or idea for a new core? Contact Micrometals today to discuss how we can help turn your idea into a reality, and even get you prototypes quickly. Our engineers will help guide your design idea into a solution that is optimized, manufacturable and economical for your application. We can even provide electrical testing of designs to determine if the performance meets requirements or analyze where additional design optimization could yield a better solution.

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Micrometals Core Values

Customers	We exceed customer expectations for service, product quality and performance by producing the industry's highest reliability powder cores.
Quality	We deliver exceptional products and support that strengthens the trust our customers and business partners have in us.
Technology	We pursue continuous improvement to stay at the forefront of the industry's changing needs through new material developments and manufacturing capabilities, engineering design tools, and efficient global supply chain solutions.
Employees	We foster an environment where our employees are committed and empowered to help our customers succeed, where we value equity and honesty for the long term benefit of our customers and shareholders.

Our Core Values never change, even when the world around us does...

Our Vision

To be trusted by more customers who are powering the future

Thousands of Off-the-Shelf Iron and Alloy Powder Cores

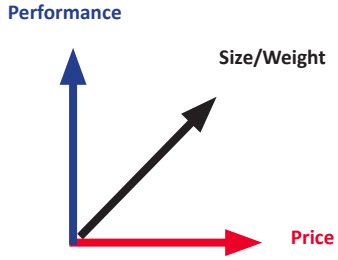
Toroid / E / EQ / PQ / HC / HD / EM / U / I / IC / ID / Pot Cores

Our application engineering team can provide additional assistance in selecting the part that will perform best in your specific application. We can assist with:

- Design optimization for performance, size, weight and price
- Design calculations for specialty applications
- Finite Element Simulations or numerical optimization of inductor designs
- Selection of custom material mixes
- Specifying coatings for adverse environments

For One-on-One Design Assistance contact us at:

APPLICATIONS@MICROMETALS.COM



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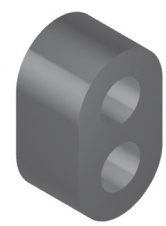
Micrometals Iron Powder Core Shapes Catalog and Custom

The parts presented in this catalog represent just a portion of the core shapes available from Micrometals. Our full catalog offering can be found on line at www.micrometals.com and includes the shapes below.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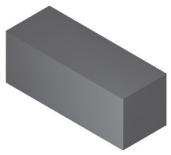
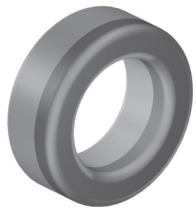

Block Core


Bus Bar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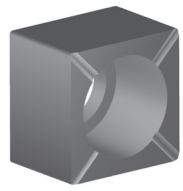
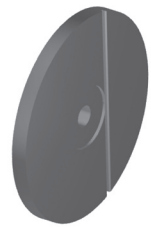

Cup Core


Disc Core-PC


Disc Core-RF


E Core

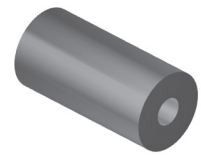

EH Core


U Core

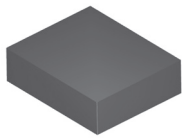

EM Core


HC Core

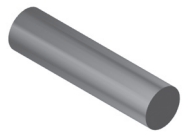

HD Core

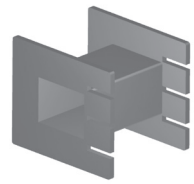

Hollow Core

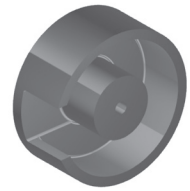

IC Core


I Core

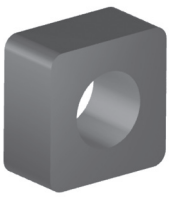

ID Core

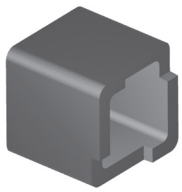

Plain Core

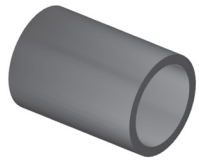

Plastic Bobbins


Pot Core


RC Core


Rectangular Toroid


SC Core


Sleeve Core


Square Bobbins


Threaded Core


Toroid

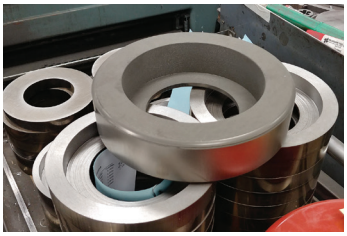
Our catalog offering is just the beginning, Micrometals has extensive experience and expertise at designing, prototyping and manufacturing and wide variety of custom shapes to optimize your design and help you create a competitive advantage in your products.

Custom capabilities and prototypes in as little as 2 weeks!

Our engineers can save you development time and money by helping you move quickly through feasibility, design and test phases and deliver prototypes quickly, which can then be moved into production. No other powder core supplier has the design, manufacturing and prototyping experience for custom cores – so start with Micrometals!

Machined catalog cores

- Reduce or remove dimensional features (grinding, turning, milling and polishing)
- Combine/stack/nest cores



Machine new core shapes from powder core blocks

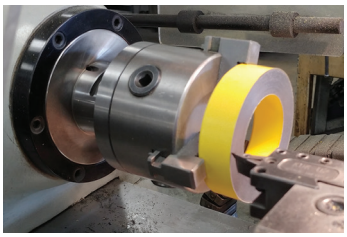
- Catalog variants
- New shapes
- New Shape / Material combinations
- Machined cores and mounting plates

Wound components

We can work directly with your winding provider or connect you with one of our winding partners near you

Special coatings

- Harsh environment coatings
- Ruggedized designs
- Medical Grade coatings
- Tighter tolerance on coating thickness
- Special masking



Micrometals Powder Core Materials – No Equivalent

Micrometals expertise and experience in creating custom core shapes and material formulations is unmatched. We have helped thousands of engineers solve their most difficult power design challenges and delivered prototype and production units with uncompromising quality. With more than 70 years of experience we can quickly assess your design challenges and help optimize your design to meet budgetary and performance requirements.

Our catalog offering of powder core materials are the highest quality in the industry and many of our formulations are the "Gold Standard" and are specified explicitly on thousands of design drawings around the world. For customers who require reliable performance and quality they simply state on their designs – ***"Micrometals Only – no equivalent"***.

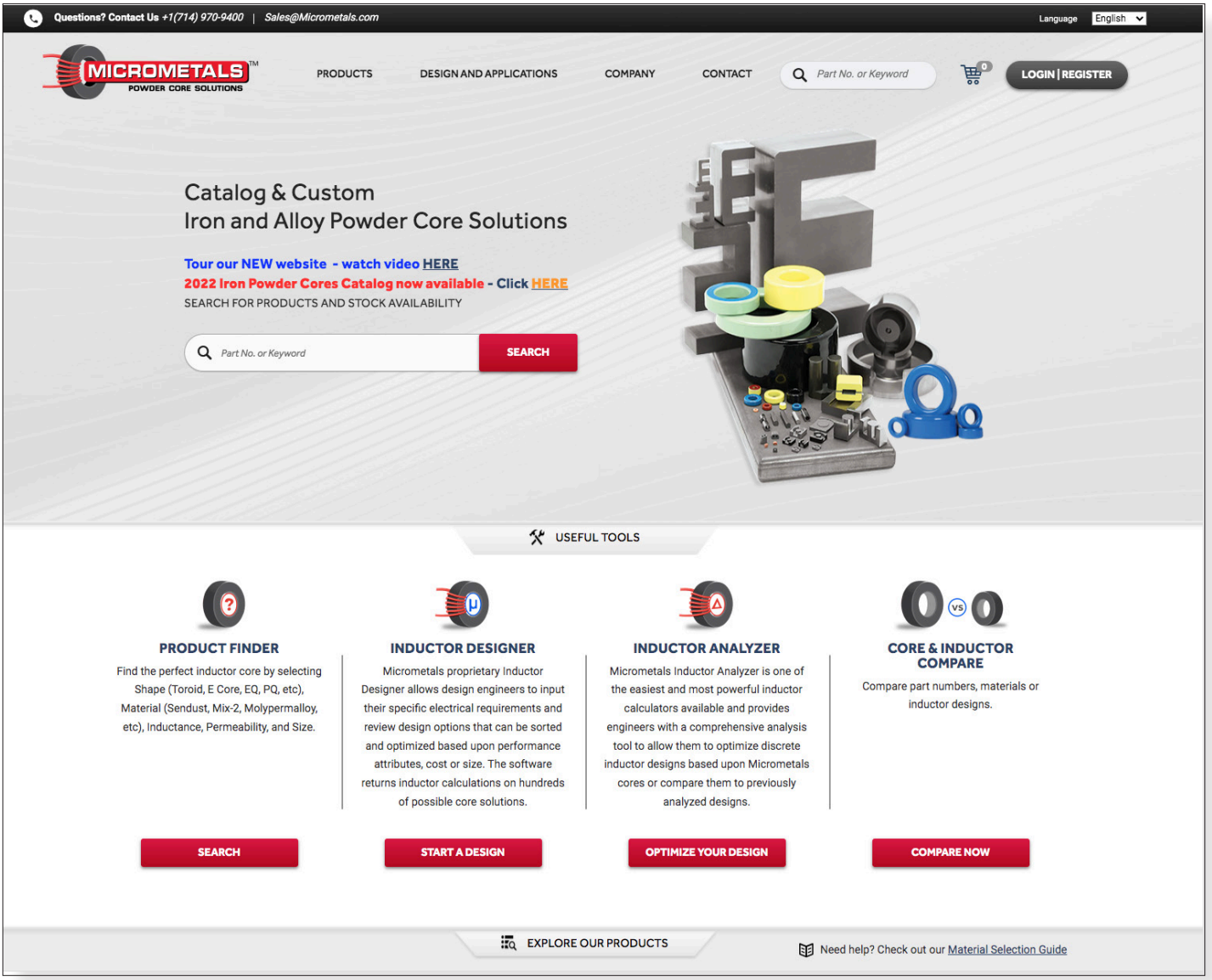
Our decades of material formulation experience enables Micrometals to develop unique Iron and Alloy powders to address demanding applications where other materials fall short. We can develop new formulations to optimize magnetic attributes, compensate for electrical design issues such as noise or interference, or improve electrical efficiency.

Our experience in custom material formulations include solutions for some of the electrical challenges below.

- Minimize power supply acoustic or electrical noise
- Optimize efficiency for specific application conditions
- Lowest core loss
- High frequency
- High power
- Optimized cost/performance
- Custom permeability
- Custom formulation and sorting to deliver tighter tolerance magnetic properties

Inductor Design Software

www.micrometals.com



Find and Design FASTER!

Our **NEW website** features more search options and more powerful design and analysis software.

Part number search for quick access to datasheets.
Parametric search by material, shape, size, permeability,
and inductance. Compare 1-3 products for comparison or design analysis

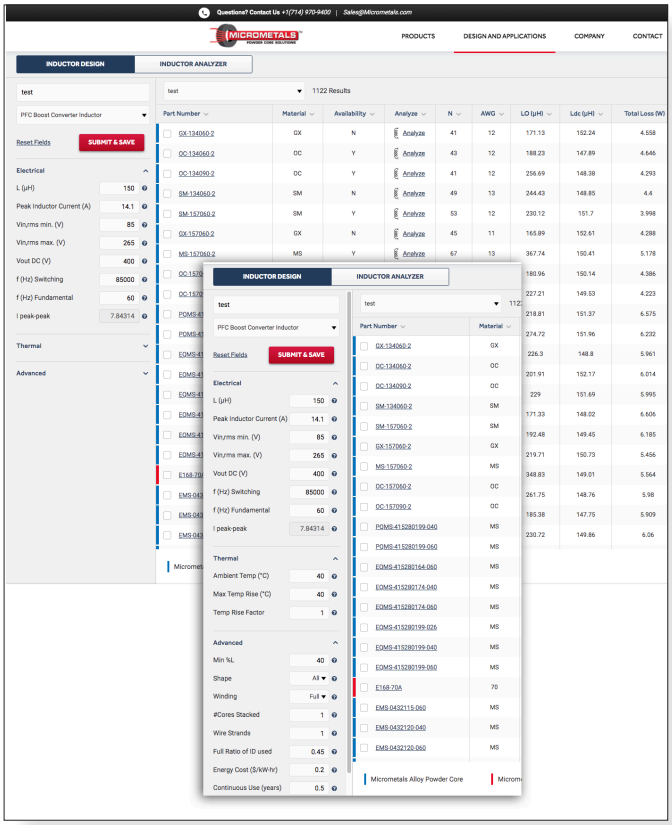
New and Improved Design and Analysis Software
Provides design guidance and product choices to speed up your development. Optimize your design based on multiple parameters including cost, efficiency, design envelope, performance or maximum power.

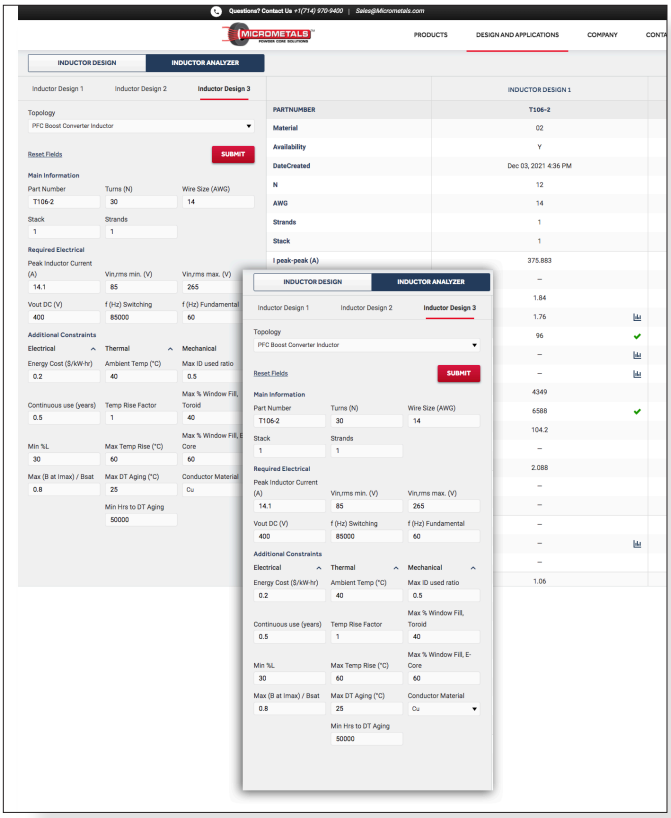
Micrometals Inductor Designer

Micrometals Inductor Design software allows engineers to choose from four different topologies: Power Factor Correction, DC inductor or AC inductor (with or without ripple), collects all the pertinent electrical, thermal and mechanical inputs, and returns a wide range of solutions that can be sorted based upon key criteria. The results can also be downloaded in csv format for closer analysis.

With one click of the "Analyze" icon that core design can then be transferred into our Inductor Analyzer tool for additional optimization, or comparison of up to two additional variations.

Video tutorials on our Inductor Design Tool and Analyzer can be found on the Micrometals website and on YouTube





Micrometals Inductor Analyzer

Micrometals Inductor Analyzer allows engineers to quickly analyze wound core designs using a wide variety of core shapes and materials – just select a core, topology and review/modify the default parameters.

Perform side-by-side comparisons of up to three designs of the same core or compare three different cores.

The Inductor Analyzer can be launched through our Product Finder or Inductor Designer by selecting a specific core or directly from the home page.

The new tools make it easy to Find and Design FASTER than ever!

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Material Selection Guide

Selecting a magnetic material with the desired permeability, DC bias stability and frequency response is crucial for the optimum design of magnetic components. Micrometals offers the largest selection of powdered materials, allowing engineers to select the ideal material for their given application, frequency and power level. This catalog summarizes Micrometals' powdered iron materials and gives a brief overview of core shapes made from this material.

Powdered iron based materials are well suited for differential mode EMI filters due to their high saturation flux density, soft saturation behavior and gradual roll off in permeability at increasing frequencies. The high amplitude permeability of some powdered iron grades combined with their high saturation flux density also make them an excellent choice in AC line filters operating at line frequencies. The lower starting permeability, lower eddy current losses and distributed air gap in carbonyl powdered iron materials make them an excellent choice in many applications requiring high frequency inductors like resonant power conversion, wireless charging, telecommunication and amarture radio. Powdered iron materials with a permeability of 14u or less will generally outperform any grade of powdered alloy material with similar permeabilities, making powdered iron the superior choice for high frequency or high current applications.

Micrometals powdered materials can be separated into three distinct groups:

Power Conversion	-2, -8, -14, -18, -19, -26, -30, -34, -35, -38, -40, -45, -52
Radio Frequency	-0, -1, -2, -3, -6, -7, -8, -10, -15, -17
High Temperature	-60, -61, -63, -65, -66, -70

An overview of the suggested Micrometals material based on general application is:

Light Dimmer/Inrush Current Limiter	-26, -38, -40, -45
Differential Mode AC Line Choke	-26, -38, -40, -45
Differential Mode DC EMI Choke	-8, -18, -19, -30, -35, -52, -63, -66
DC Power Conversion Chokes	-30, -34, -52, -63, -66, -70,
Resonant Inductor - Power Conversion	-0, -2, -6, -10, -17, -70
Resonant Inductor - High Q	-0, -1, -2, -3, -6, -7, -10, -15, -17
Broadband Transformer	-0, -1, -2, -3, -6, -7, -10, -15, -17
Class D Audio Amplifier Choke	-2, -14
Flyback Converter > 1kHz	-66, -70
Ignition Coil Flyback <1kHz	-26, -38, -45
High Temperature Magnetics	-60, -61, -63, -65, -66, -70

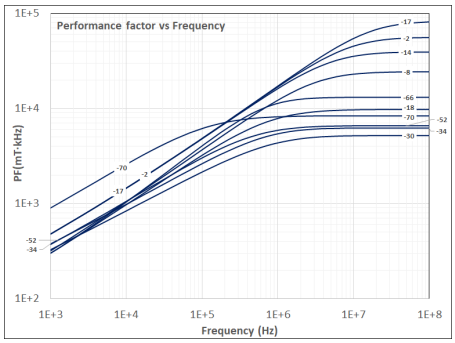
A detailed overview of the relevant relative performance characteristics of each material are shown later to allow designers to narrow down their material choice further. In addition, Micrometals' free online inductor design tool can be used to aid in the selection of the ideal material for given inductor performance requirements.

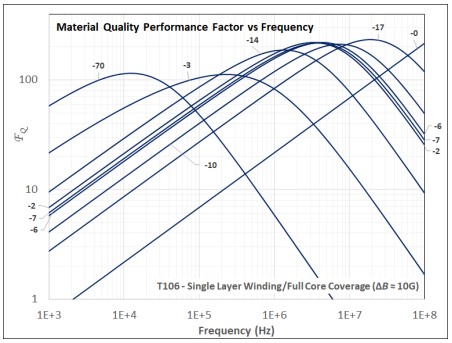
Micrometals also offers a wide selection of powdered alloy materials. These materials tend to be better suited for switching inductors used in power topologies like PFC, buck or boost converters operating below 1MHz. Please see Micrometals' powdered alloy catalog for additional information on these types of materials.

For differential mode DC EMI filters, it is beneficial to select a material that will provide the highest differential permeability at the magnetization force and filtering frequency of interest. This will maximize the impedance the inductor provides for filtering the noise signal. The table below shows the Micrometals' powdered iron material grades which will provide the highest differential permeability at the stated frequency and magnetization force. For each operating point, the optimum material is given which provides the highest possible differential permeability. In addition, for cost sensitive applications, the most effective 'economical' or lower cost material grade is specified:

		0Oe	25Oe	50Oe	75Oe	100Oe	150Oe	200Oe	300Oe	500Oe	750Oe	1000Oe
10 kHz	Optimum	-70	-70	-70	-66	-66	-3/-8	-3/-8	-3/-8	-1	-14	-14
	Economy	-38	-38	-52	-19	-19	-35	-35	-35	-30	-30	-30
100kHz	Optimum	-70	-70	-70	-66	-66	-3/-8	-3/-8	-3/-8	-1	-14	-14
	Economy	-38	-38	-52	-19	-19	-35	-35	-35	-30	-30	-30
500kHz	Optimum	-70	-70	-70	-66	-66	-3/-8	-3/-8	-3/-8	-1	-14	-14
	Economy	-38	-52	-52	-19	-19	-35	-35	-35	-30	-30	-30
1MHz	Optimum	-70	-70	-70	-66	-66	-3/-8	-3/-8	-3/-8	-1	-14	-14
	Economy	-52	-52	-19	-19	-19	-35	-35	-35	-30	-30	-30
5MHz	Optimum	-70	-70	-66	-66	-66	-3/-8	-3/-8	-3/-8	-1	-14	-14
	Economy	-52	-19	-19	-19	-19	-35	-34	-30	-30	-30	-30
10MHz	Optimum	-70	-70	-66	-66	-66	-3/-8	-3/-8	-3/-8	-1	-14	-14
	Economy	-19	-19	-19	-19	-19	-35	-34	-30	-30	-30	-30
50MHz	Optimum	-70	-18	-18	-3/-8	-3/-8	-3/-8	-3/-8	-3/-8	-1	-14	-14
	Economy	-19	-19	-19	-19	-19	-34	-34	-30	-30	-30	-30
100MHz	Optimum	-3/-8	-3/-8	-3/-8	-3/-8	-3/-8	-3/-8	-3/-8	-3/-8	-1	-14	-14
	Economy	-19	-19	-19	-34	-34	-34	-34	-30	-30	-30	-30
500MHz	Optimum	-3/-8	-3/-8	-3/-8	-3/-8	-3/-8	-3/-8	-3/-8	-3/-8	-1	-2	-2
	Economy	-34	-34	-34	-34	-34	-34	-34	-30	-30	-30	-30

For power conversion or RF applications, core loss or Q are important considerations when selecting a material. The performance factor for a variety of Micrometals' powdered iron materials is shown below. The performance factor is based on a core loss density of 300mW/cm^3. The performance factor can be used to evaluate the relative performance of the different powdered iron core materials in voltage driven power conversion applications. Note that for most power conversion applications, performance factor alone is not a reliable indication of overall inductor performance. The other chart provided shows the normalized quality performance factor for a variety of Micrometals' powdered iron materials. The chart does not show the absolute Q that can be attained with the stated materials, it only shows a relative comparison between the materials for the stated frequency range. The chart is based on a T106 toroid size, note that the optimum frequency ranges for each material shifts towards higher frequencies for smaller cores and to lower frequencies for larger cores. For more detailed information on attainable Q values using Micrometals materials please consult Micrometals' Q curve catalog.





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Materials Group

Power Conversion

General Material Properties

Material Mix No.	Reference Permeability	Typical AL Tolerance (%)	Powder Type	Bsat	Density gm/cm^3	Temp Coef of Perm (+ppm/C°)	Thermal Conductivity (mW/cm=C°)	Coef. of Lin. Expansion (+ppm/C°)	Relative Cost*	Color Code Toroid
-2	10	±5	Carbonyl Iron	14,800	5.0	95	10	10	2.2	Red/Clear
-8	35	±10	Carbonyl Iron	17,600	6.5	255	29	10	3.1	Yellow/Red
-14	14	±10	Carbonyl Iron	15,200	5.2	150	11	10	2.8	Black/Red
-18	55	±10	Iron	17,800	6.6	385	21	11	2.7	Green/Red
-19	55	±10	Iron	18,200	6.8	650	30	12	1.2	Red/Green
-26	75	±10	Iron	18,500	7.0	825	42	12	1.0	Yellow/White
-30	22	±10	Iron	16,700	6.0	510	20	11	1.1	Green/Gray
-34	33	±10	Iron	17,100	6.2	565	28	12	1.3	Gray/Blue
-35	33	±10	Iron	17.300	6.3	665	30	12	1.1	Yellow/Gray
-38	85	±10	Iron	18,700	7.1	956	43	12	1.1	Gray/Black
-40	60	±10	Iron	18,400	6.9	950	36	11	1.0	Green/Yellow
-45	100	±10	Iron	18,900	7.2	1043	43	12	2.6	Black/Black
-52	75	±10	Iron	18,500	7.0	650	34	12	1.1	Green/Blue

*Relative cost as compared to Micrometals-26 or-40 materials for a 25mm toroid.

Material Magnetic Characteristics

Material Mix No.	H(Oe) at 80% µi	µ effective at H=50(Oe)	Max Frequency Power Conversion (MHz)	Max Frequency Filtering (MHz)	Core Loss (mW/cm^3)				
					60Hz/5000 G	10kHz/500 G	100kHz/14O G	1MHz/40 G	10MHz/15 G
-2	673	10	12.7	>100	19	32	18	9	27
-8	101	32	4.57	>100	45	59	32	22	123
-14	406	14	6.7	>100	19	32	18	11	49
-18	45	42	1.1	>100	48	70	46	70	715
-19	48	43	0.8	60	31	72	54	99	1138
-26	25	41	0.24	5	32	75	83	327	–
-30	120	20	0.77	>100	37	120	129	248	2537
-34	78	29	0.75	95	29	87	82	157	1756
-35	76	29	0.72	70	33	109	119	241	2531
-38	23	44	0.12	5.5	31	72	103	532	–
-40	33	40	0.18	7	29	93	127	530	–
-45	18	43	0.3	11	26	60	61	212	–
-52	30	46	0.51	12	30	68	58	134	1571

Material Information

-2 & -14 Materials: The low permeability of these materials will result in lower operating AC flux density than other materials with no additional gap-loss. The -14 Material is similar to -2 Material with a higher permeability.

-8 Material: This material has low core loss and good linearity under high bias conditions. A good high frequency material, also the highest cost iron powder material.

-18 Material: This material has low core loss similar to the -8 Material with higher permeability and a lower cost. Good DC saturation characteristics.

-19 Material: An inexpensive alternate to the -18 Material with the same permeability and somewhat higher core losses.

-26 Material: A very popular material, it is a cost-effective general purpose material that is useful in a wide variety of power conversion and line filter applications.

-30 Material: The good linearity, low cost and relatively low permeability of this material make a popular choice for high power UPS applications.

-34, -35 Materials: An inexpensive alternate to the -8 Material where high frequency core loss is not critical. Both -34 & -35 Materials have good linearity with high bias.

-38 Material: Similar to the -26 Material with higher permeability.

-40 Material: The least expensive iron powder material, characteristics similar to the -26 Material with a lower permeability. Most popular is large sizes.

-45 Material: The highest permeability iron powder material available. Consider as a high perm alternate to the -52 Material with slightly higher core losses.

-52 Material: This material has lower core losses at high frequency and the same permeability as the -26 Material. It is popular for high frequency choke designs and available in a wide variety of geometries.

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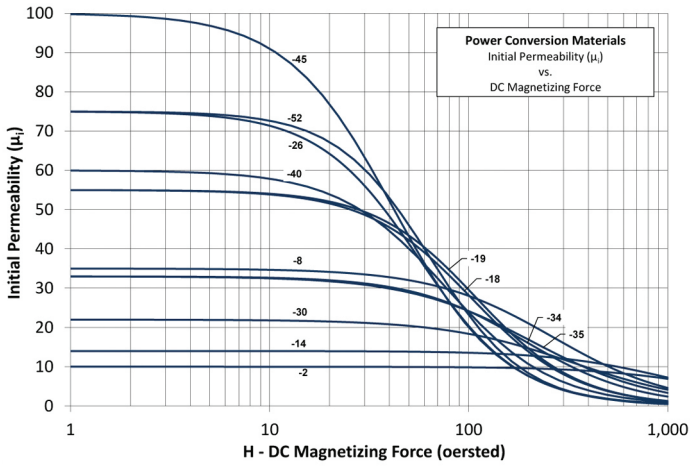
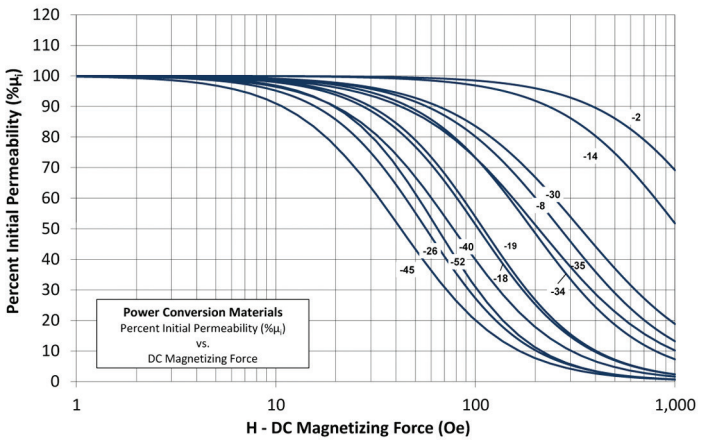
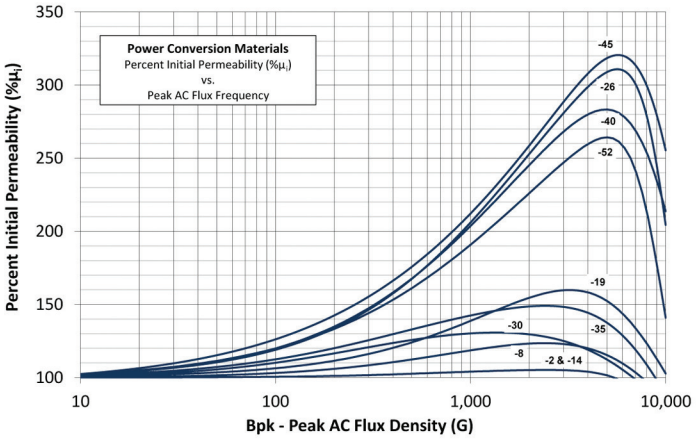
Initial Permeability (μi) vs. DC Magnetizing Force



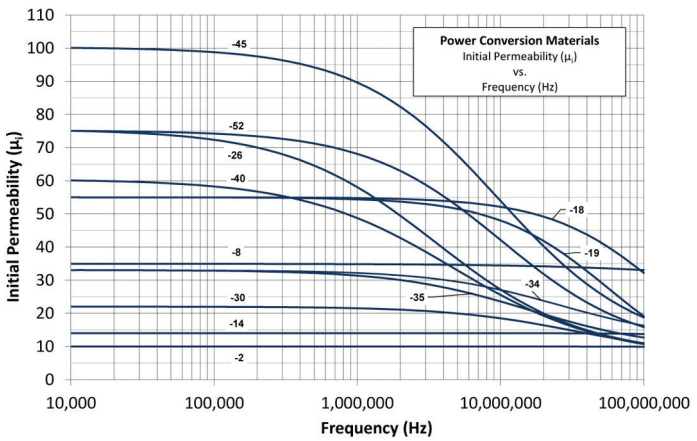
Percent Initial Permeability (%μi) vs. DC Magnetizing Force



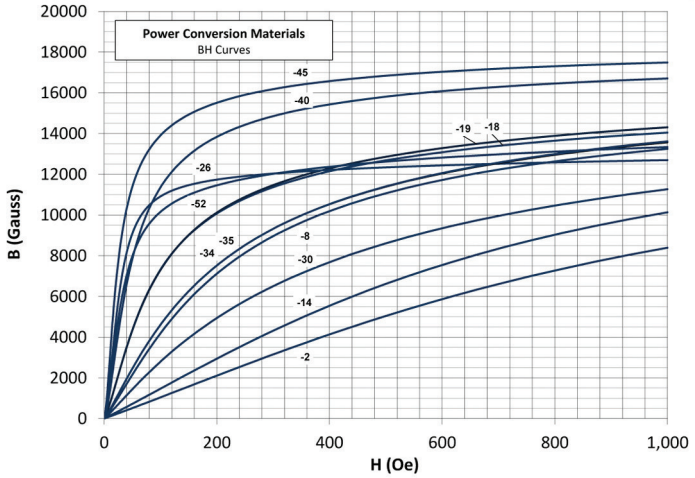
Percent Initial Permeability (%μi) vs. Peak AC Flux Frequency



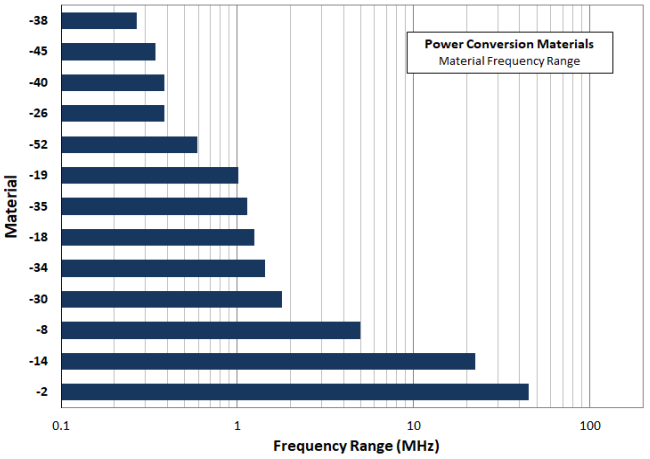
Initial Permeability (μi) vs Frequency (Hz)



Initial Magnetization Curves



Material Frequency Range



Radio Frequency

General Material Properties

Material Mix No.	Reference Permeability	Typical AL Tolerance (%)	Powder Type	Temp Coef of Perm (+ppm/C°)	Density gm/cm^3	Max Frequency (MHz)	Relative Cost*	Color Code Toroid
-0	1	N/A	Phenolic	N/A	2.2	N/A	1.3	Tan/Tan
-1	20	±10	Carbonyl Iron	280	6.3	10	3.8	Blue/Clear
-2	10	±5	Carbonyl Iron	95	5.0	45	2.2	Red/Clear
-3	35	±10	Carbonyl Iron	255	6.5	5.0	3.3	Gray/Clear
-6	8.5	±5	Carbonyl Iron	35	4.8	55	3.6	Yellow/Clear
-7	9	±5	Carbonyl Iron	30	4.9	50	3.0	White/Clear
-8	35	±10	Carbonyl Iron	255	6.5	5.0	3.1	Yellow/Red
-10	6	±5	Carbonyl Iron	150	4.5	83	5.5	Black/Clear
-15	25	±10	Carbonyl Iron	190	6.4	7.0	3.4	Red/White
-17	4	±5	Carbonyl Iron	50	4.0	170	3.5	Blue/Yellow

*Relative cost as compared to Micrometals-26 or-40 materials for a 25mm toroid.

Material Information

-2, -6 & -7 Materials: These are the most popular carbonyl iron mixes. They will provide High Q up to 40 MHz and are popular for audio, high frequency power conversion, communication and amateur radio applications. They are also useful for moderate band transformers in the 200 to 400 MHz frequency range.

-1, -3, -8 & -15 Materials: These materials are annealed carbonyl irons providing the highest carbonyl permeability. They are useful for high Q applications below 1 MHz and will provide the broadest band transformers covering a typical range from 40 to 250 MHz. These materials' high bias and frequency stability make them a good choice for high frequency differential mode EMI filters as well.

-10 & -17 Materials: These materials are the highest frequency carbonyl irons. They will provide high Q up to 150 MHz and are popular materials for resonant power conversion or cable television applications. They will produce moderate band transformers covering 400 to 700 MHz.

-0 Material: This is a non-magnetic material. It provides a solid winding form for winding air coils. It has excellent temperature stability and will provide high Q up to the highest frequencies. It is also useful for moderate band transformer applications covering a typical range from 600 MHz to 1 GHz.

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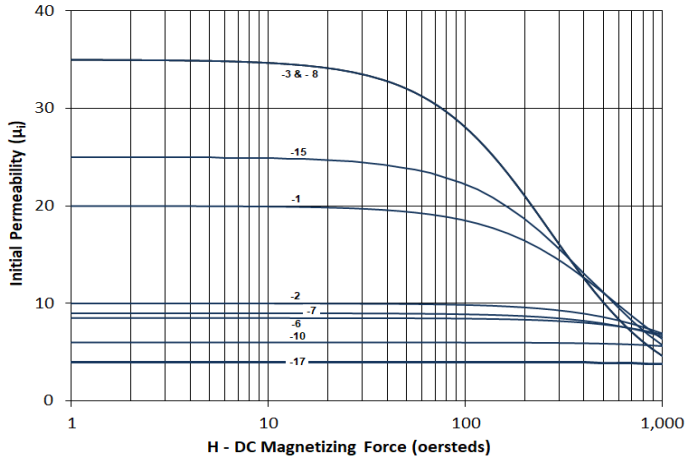
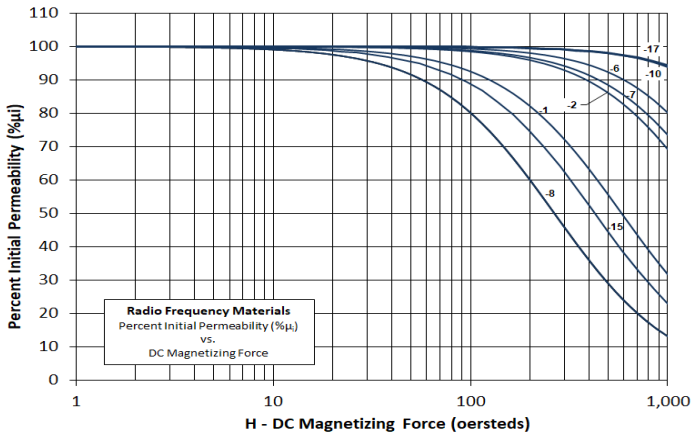
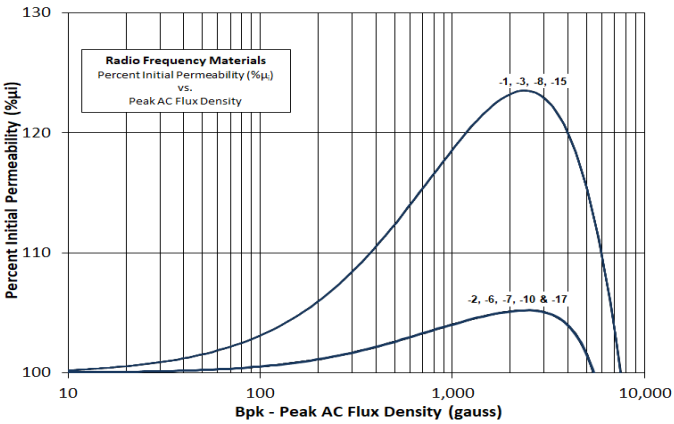
Initial Permeability (μi) vs. DC Magnetizing Force



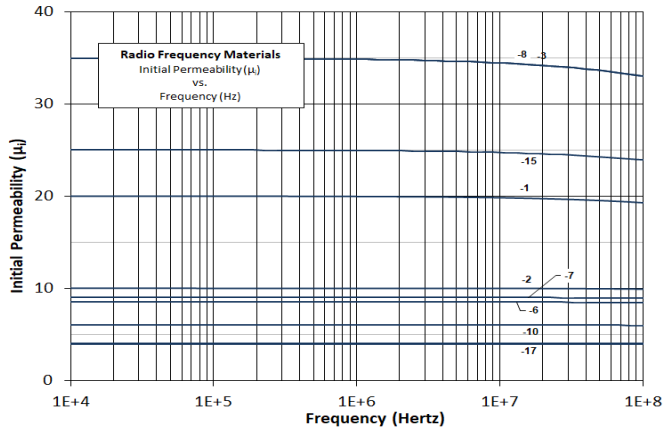
Percent Initial Permeability (%μi) vs. DC Magnetizing Force



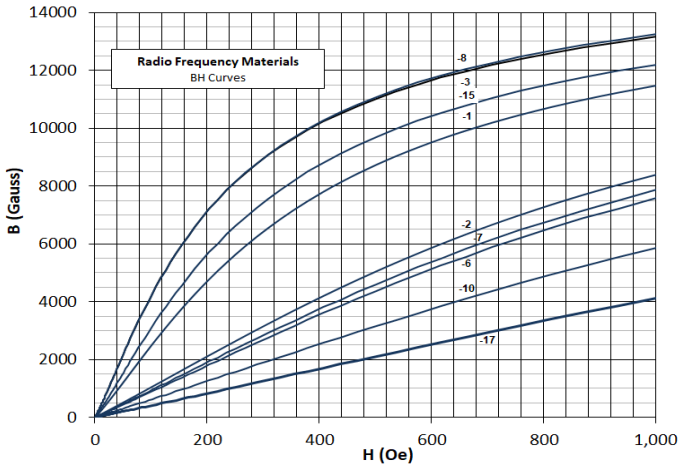
Percent Initial Permeability (%μi) vs. Peak AC Flux Density



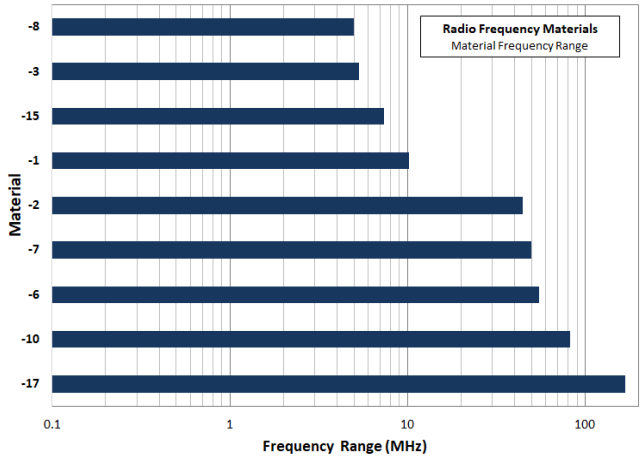
Initial Permeability (μi) vs Frequency (Hz)



Initial Magnetization Curves



Material Frequency Range



High Temperature

General Material Properties

Material Mix No.	Reference Permeability	Typical AL Tolerance (%)	Powder Type	Temp Coef of Perm (+ppm/C°)	Density gm/cm³	Max Frequency (MHz)	Relative Cost*	Color Code Toroid
-60	55	±10	Silicon-Iron	168	6.1	1.3	2.0	Brown/Black
-61	38	±10	Silicon-Iron	-418	6.1	2.0	2.0	Brown/Gray
-63	35	±10	Silicon-Iron	-313	5.9	5.8	3.0	Brown/Beige
-65	42	±10	Silicon-Iron	-80	6.1	2.0	2.0	Brown/Yellow
-66	66	±10	Silicon-Iron	-220	6.2	1.5	2.5	Brown/Brown
-70	100	±10	Nickel-Iron	216	7.4	0.66	9.9	Beige/Black

*Relative cost as compared to Micrometals-26 or-40 materials for a 25mm toroid.

Material Magnetic Characteristics

Material Mix No.	Bsat (G)	H(Oe) at 80% µi	%µi at H=50(Oe)	µ effective at H=50(Oe)	Core Loss (mW/cm³)				
					60Hz/5000 G	10kHz/500 G	100kHz/14O G	1MHz/40 G	10MHz/15 G
-60	14,400	35	71	39	43	76	52	68	630
-61	14,400	65	85	32	80	113	69	72	569
-63	14,100	69	86	30	74	60	31	20	88
-65	16,000	55	82	35	54	77	33	48	567
-66	16,200	36	71	47	48	48	17	31	392
-70	8,600	20	47	47	6	10	13	69	947

Material Information

-60 Material: The 60 Series of materials are cost effective magnetic powder alloy materials that are not subject to thermal aging for operating temperatures up to 200°C. The -60 Material has 55 permeability and can be considered as a substitute for -18 Material.

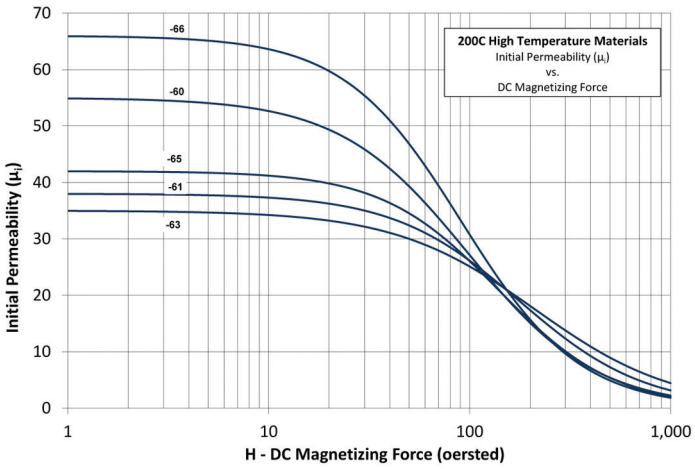
-61 Material, -63 Materials: Both materials have an initial permeability of 35. The -63 Material has excellent high frequency properties and can operate past 10MHz. -63 Material can be considered for high temperature alternate to -8 Material. Both materials are not subject to thermal aging concerns.

-65 Material: This material has a permeability of 42 and is most popular in Microcube geometries. The -65 has higher core losses at high frequencies compared to -66 Material but better DC saturation. No thermal aging concerns.

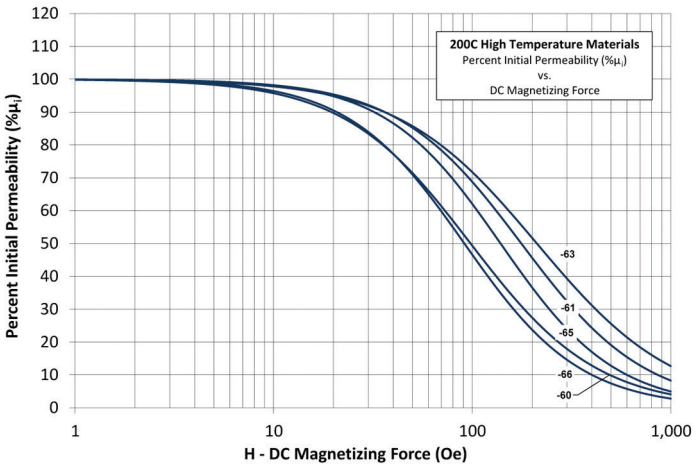
-66 Material: This material offers low core losses and is well suited for power conversion applications below 150kHz and EMI filter applications below 30MHz. This material experiences no thermal aging under 200°C.

-70 Material: This is a magnetic powder alloy including nickel. The -70 Material has higher permeability than the 60 Series with excellent losses up to 400kHz. This is a relatively expensive material, most competitively priced in smaller sizes. No thermal aging concerns.

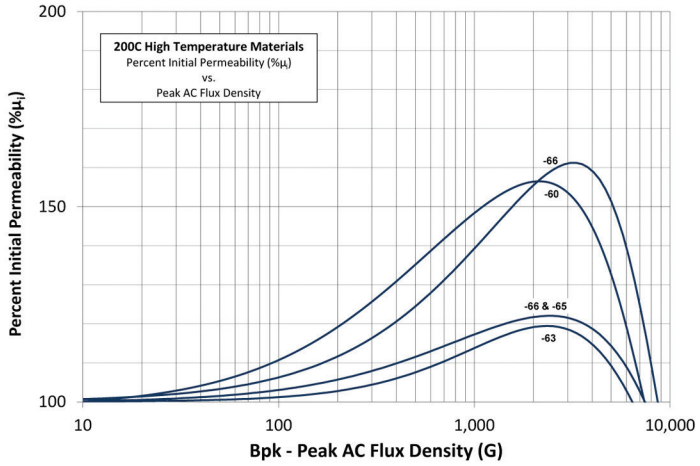
Initial Permeability (μi) vs. DC Magnetizing Force



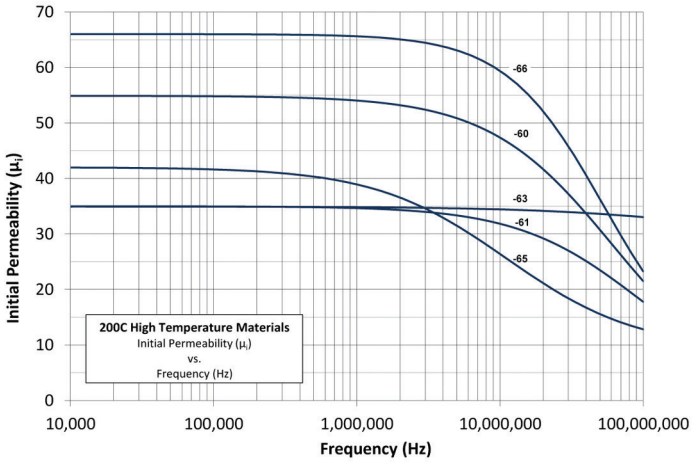
Percent Initial Permeability (%μi) vs. DC Magnetizing Force



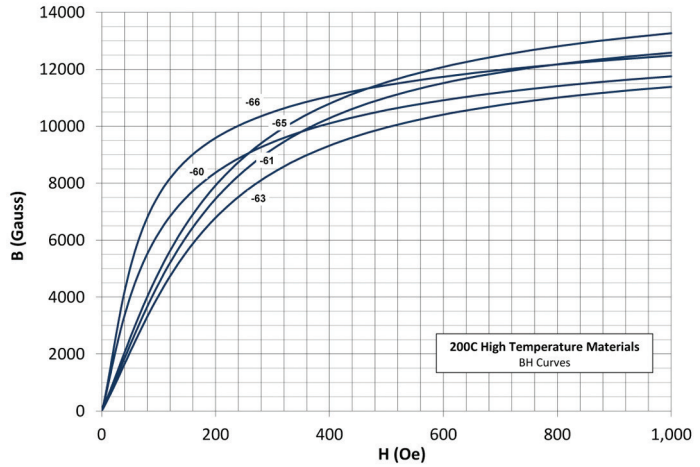
Percent Initial Permeability (%μi) vs. Peak AC Flux Density



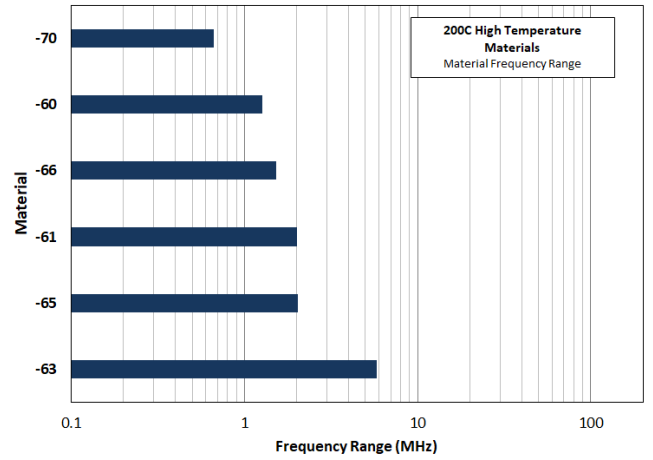
Initial Permeability (μi) vs Frequency (Hz)



Initial Magnetization Curves



Material Frequency Range



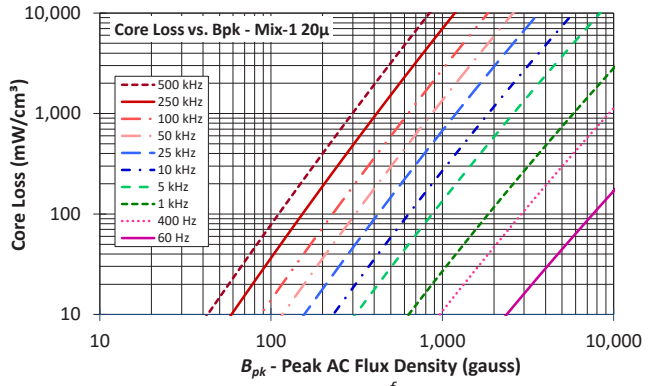
Materials Performance Data

Mix:	-1

Revision 2023-Dec-15 - Generated 2023-Dec-15

-1 material is an annealed carbonyl iron providing a high permeability over a wide frequency range. This material is useful for high Q applications below 1 MHz and provides the broadest band transformers covering a typical range from 50 to 500 MHz.

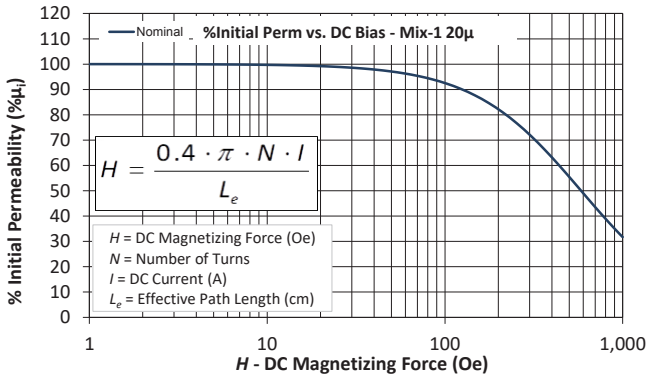
µi(reference)	20
Typical AL tolerance	± 10%
Color Code	Blue/Clear
Density	6.3 g/cm³
Bsat	17.3kG
Core Loss (100kHz, 140g)	31 mW/cm³ (nom) 36 mW/cm³ (max)
%Perm at DC Bias (200 Oe)	82.2% (nom) 78.0% (min)



$$\text{Core Loss } (mW/cm^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

a=1.90E+09, b=2.00E+08, c=9.00E+05, d=4.30E-15

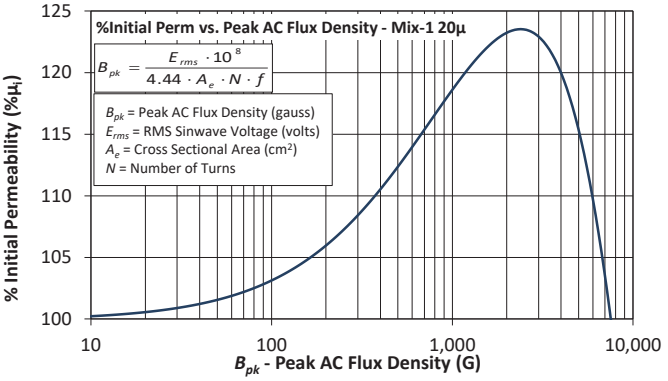


$$H = \frac{0.4 \cdot \pi \cdot N \cdot I}{L_e}$$

$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

a=1.00E-02, b=1.14E-06, c=1.43, d=0.00

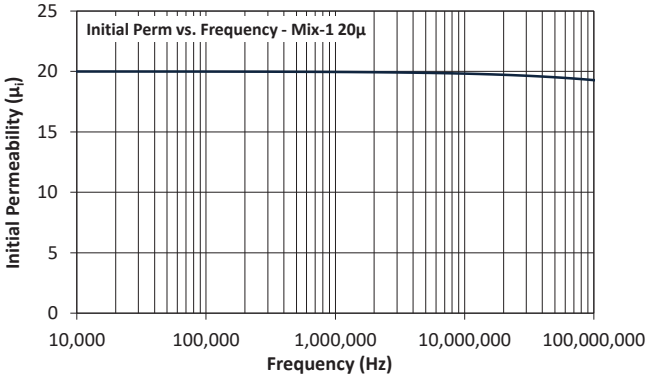


$$B_{pk} = \frac{E_{rms} \cdot 10^8}{4.44 \cdot A_e \cdot N \cdot f}$$

$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

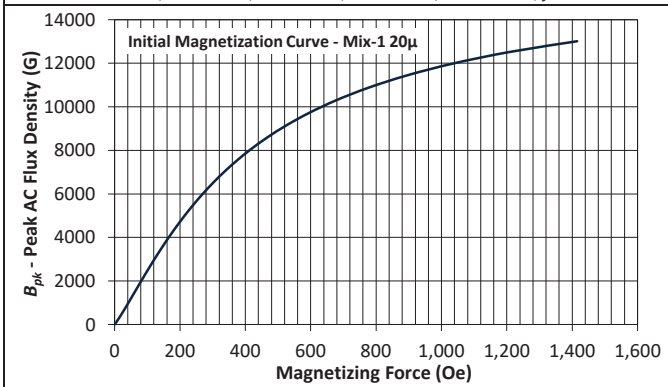
a=3.50E+02, b=3.78E-01, c=1.03E+00, d=1.76E+10, e=-1.98E+00, f=1.40E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

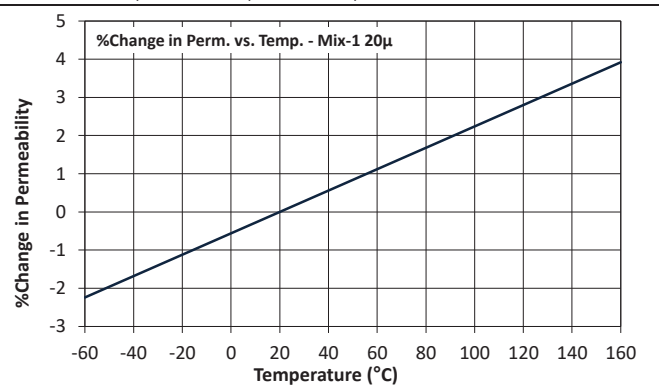
a=2.19E-01, b=1.98E-07, c=6.64E-01, d=1.54E+01



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=3.23E-02, b=1.70E+00, c=3.60E+01, d=6.40E-01, e=8.65E+02



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

a=280

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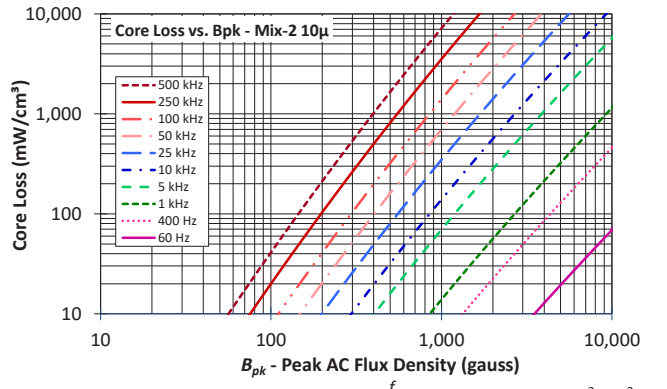
-2 material is a popular carbonyl iron mix that provides high Q up to 40 MHz and is the material of choice for audio and high frequency power conversion, communication and amateur radio applications. It is also useful for moderate band transformers in the 200 to 400 MHz frequency range. The low permeability of-2 material results in lower operating AC flux density than other materials with no additional gap-loss. For a slightly higher permeability consider the-14 material.

Mix:	-2

Revision 2023-Dec-15 - Generated 2023-Dec-15

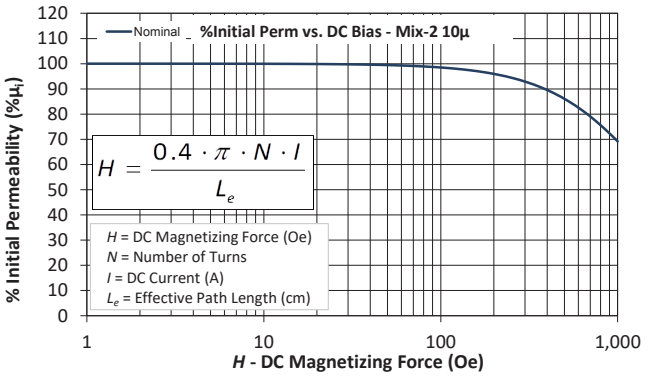
µi(reference)	10
Typical AL tolerance	± 5%
Color Code	Red/Clear
Density	5.0 g/cm³
Bsat	14.8kG
Core Loss (100kHz, 140g)	18 mW/cm³ (nom) 20 mW/cm³ (max)
%Perm at DC Bias (200 Oe)	95.9% (nom) 94.8% (min)



$$\text{Core Loss } (mW/cm^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

a=4.00E+09, b=3.00E+08, c=2.70E+06, d=9.60E-16

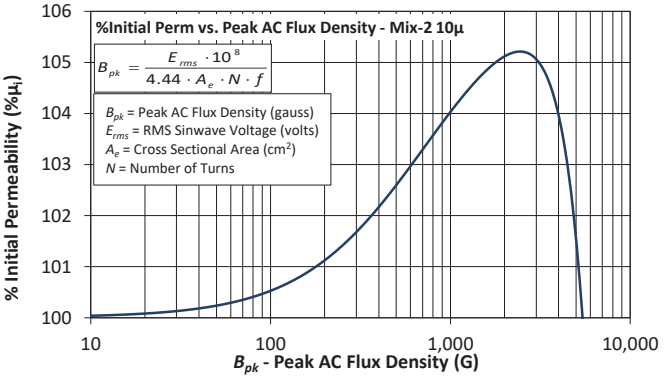


$$H = \frac{0.4 \cdot \pi \cdot N \cdot I}{L_e}$$

$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

a=1.00E-02, b=1.83E-07, c=1.46, d=0.00

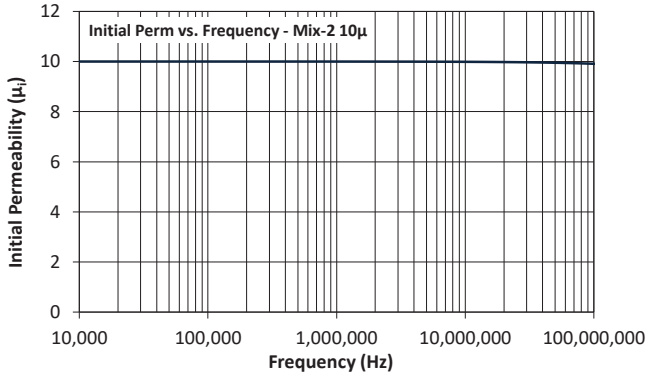


$$B_{pk} = \frac{E_{rms} \cdot 10^8}{4.44 \cdot A_e \cdot N \cdot f}$$

$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

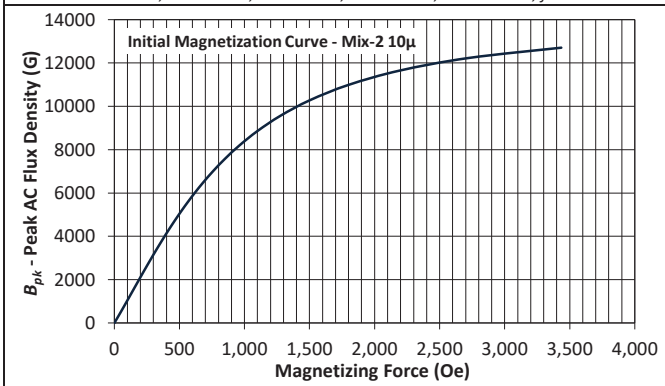
a=1.57E+03, b=4.50E-01, c=1.25E+00, d=1.16E+17, e=-3.70E+00, f=1.07E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

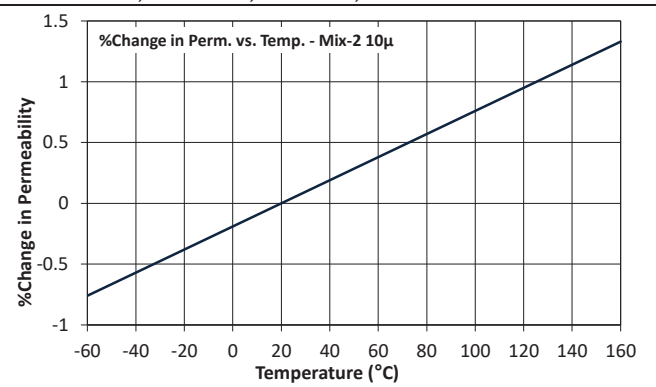
a=1.11E-01, b=7.01E-11, c=9.00E-01, d=1.00E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=1.50E-03, b=1.96E+00, c=1.97E+04, d=9.18E-04, e=1.48E+03



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

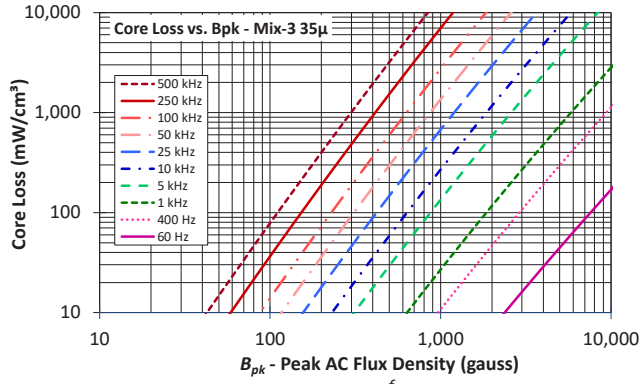
a=95

-3 material is an annealed carbonyl iron providing the highest carbonyl permeability. It is useful for high Q applications below 1 MHz and is also suitable for broadband transformers coving a range from 40 to 250MHz. The-3 provides slightly higher Q and lower losses than the-8 in the RF frequency range.

Mix:	-3

Revision 2023-Dec-15 - Generated 2023-Dec-15

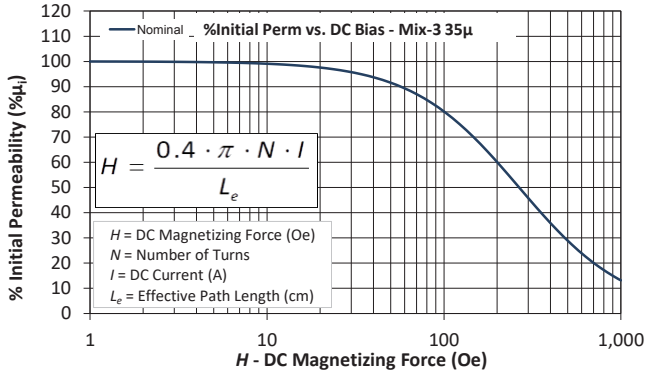
µi(reference)	35
Typical AL tolerance	± 10%
Color Code	Gray/Clear
Density	6.5 g/cm³
Bsat	17.6kG
Core Loss (100kHz, 140g)	31 mW/cm³ (nom) 36 mW/cm³ (max)
%Perm at DC Bias (200 Oe)	60.1% (nom) 53.7% (min)



$$Core\ Loss\ (mW/cm^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

a=1.90E+09, b=2.00E+08, c=9.00E+05, d=4.30E-15

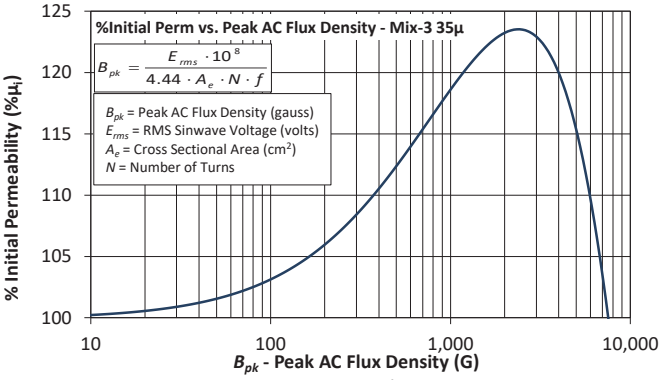


$$H = \frac{0.4 \cdot \pi \cdot N \cdot I}{L_e}$$

$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

a=1.00E-02, b=3.49E-06, c=1.43, d=0.00

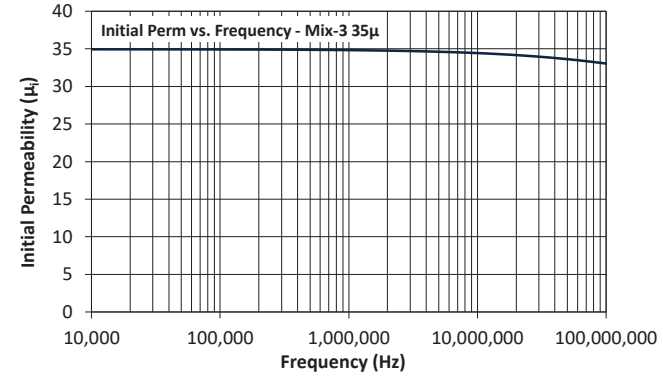


$$B_{pk} = \frac{E_{rms} \cdot 10^8}{4.44 \cdot A_e \cdot N \cdot f}$$

$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

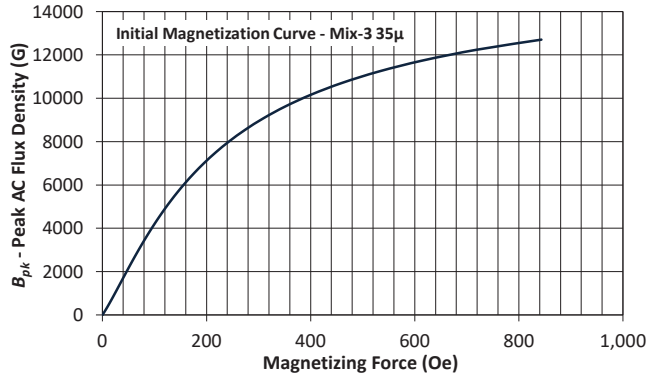
a=3.50E+02, b=3.78E-01, c=1.03E+00, d=1.76E+10, e=-1.98E+00, f=1.40E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

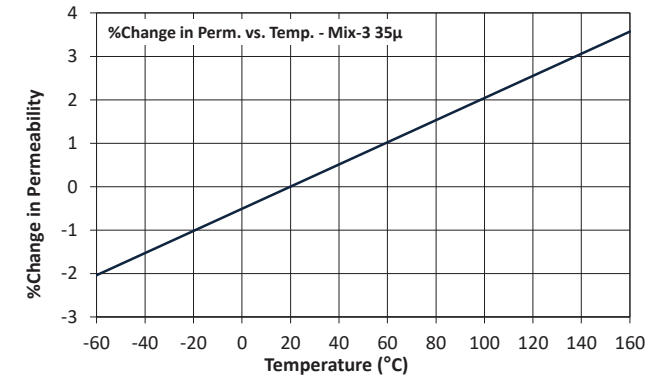
a=1.27E-01, b=1.98E-07, c=6.64E-01, d=2.70E+01



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=4.11E-02, b=1.75E+00, c=3.64E+01, d=5.64E-01, e=5.04E+02



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

a=255

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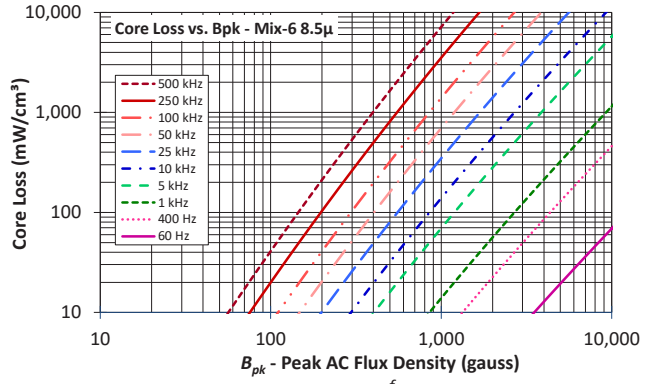
-6 material is a carbonyl iron mix that provides high Q up to 40 MHz and is popular for amateur radio, communication applications and high frequency power conversion. It is also useful for moderate band transformers in the 200 to 400 MHz frequency range. Consider the-6 as a lower permeability alternative to-2.

Mix:	-6

Revision 2023-Dec-15 - Generated 2023-Dec-15

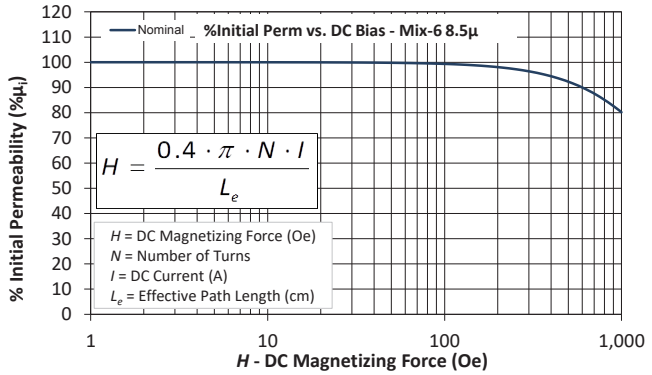
µi(reference)	8.5
Typical AL tolerance	± 5%
Color Code	Yellow/Clear
Density	4.8 g/cm³
Bsat	14.4kG
Core Loss (100kHz, 140g)	18 mW/cm³ (nom) 20 mW/cm³ (max)
%Perm at DC Bias (200 Oe)	98.1% (nom) 97.4% (min)



$$\text{Core Loss (mW/cm}^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

a=4.00E+09, b=3.00E+08, c=2.70E+06, d=8.90E-16

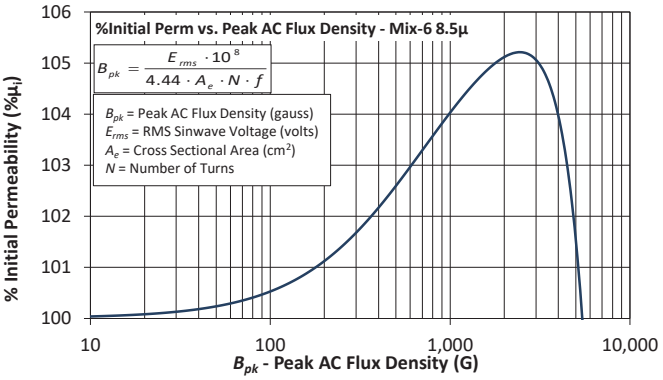


$$H = \frac{0.4 \cdot \pi \cdot N \cdot I}{L_e}$$

$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

a=1.00E-02, b=4.87E-08, c=1.57, d=0.00

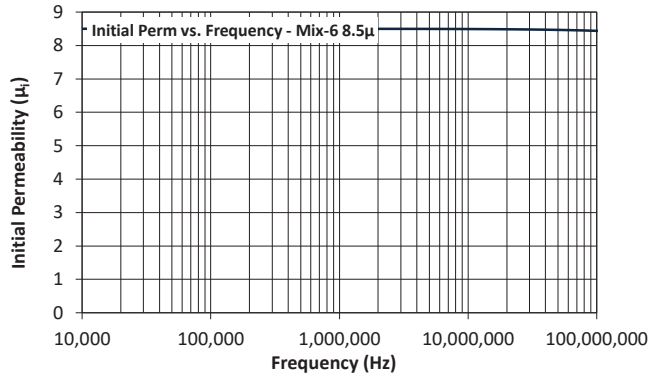


$$B_{pk} = \frac{E_{rms} \cdot 10^8}{4.44 \cdot A_e \cdot N \cdot f}$$

$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

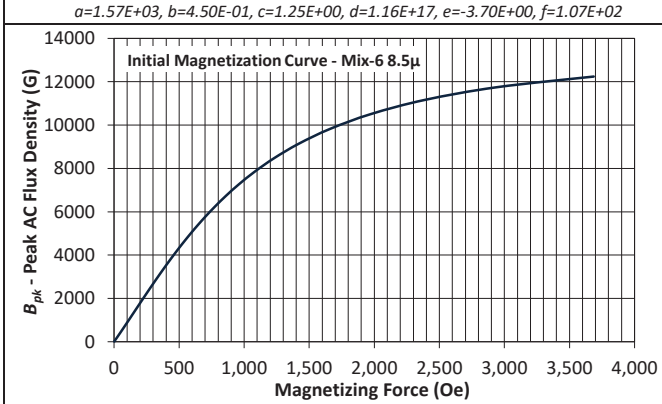
a=1.57E+03, b=4.50E-01, c=1.25E+00, d=1.16E+17, e=-3.70E+00, f=1.07E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

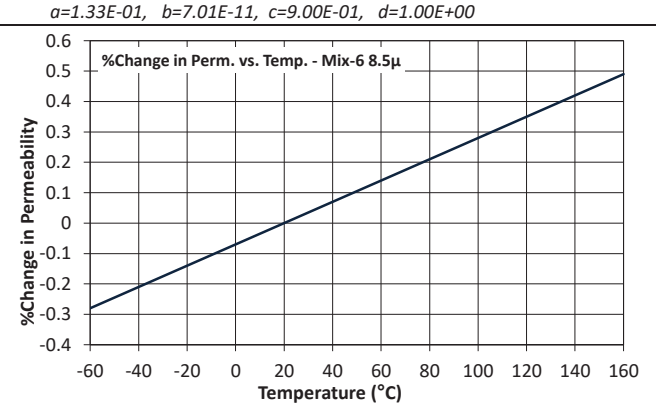
a=1.33E-01, b=7.01E-11, c=9.00E-01, d=1.00E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=1.28E-03, b=1.96E+00, c=2.30E+04, d=9.19E-04, e=1.69E+03



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

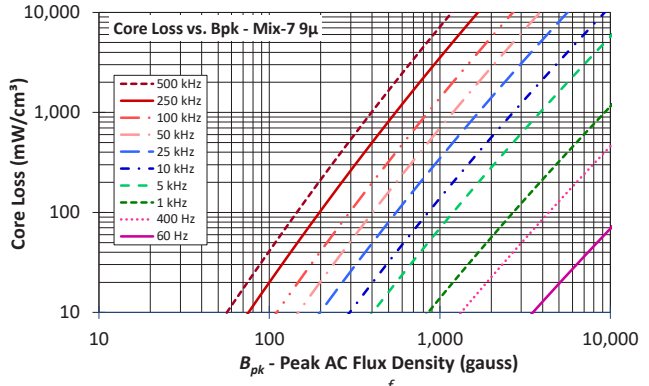
a=35

-7 material is a carbonyl iron mix that provides high Q up to 40 MHz and is very popular for amateur radio and a variety of other communication applications. It is also useful for moderate band transformers in the 200 to 400 MHz frequency range. Consider-7 as a lower cost alternative to-6 with a slightly higher permeability.

Mix:	-7

Revision 2023-Dec-15 - Generated 2023-Dec-15

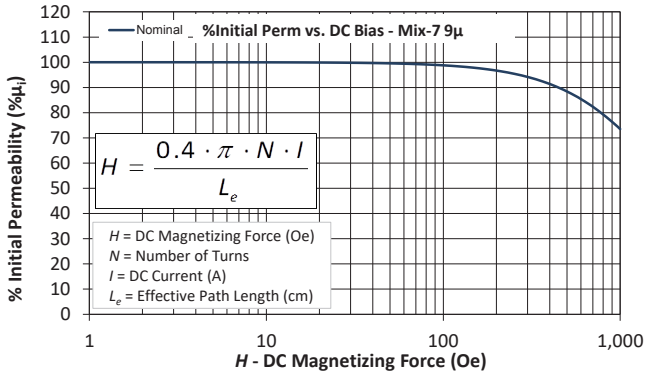
µi(reference)	9
Typical AL tolerance	± 5%
Color Code	White/Clear
Density	4.9 g/cm³
Bsat	14.6kG
Core Loss (100kHz, 140g)	18 mW/cm³ (nom) 20 mW/cm³ (max)
%Perm at DC Bias (200 Oe)	96.7% (nom) 95.7% (min)



$$\text{Core Loss (mW/cm}^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

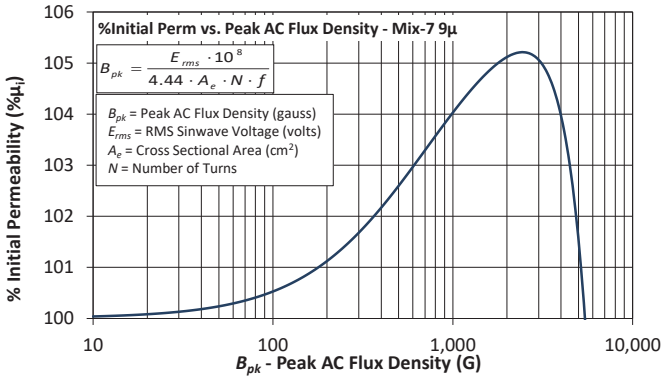
a=4.00E+09, b=3.00E+08, c=2.70E+06, d=9.60E-16



$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

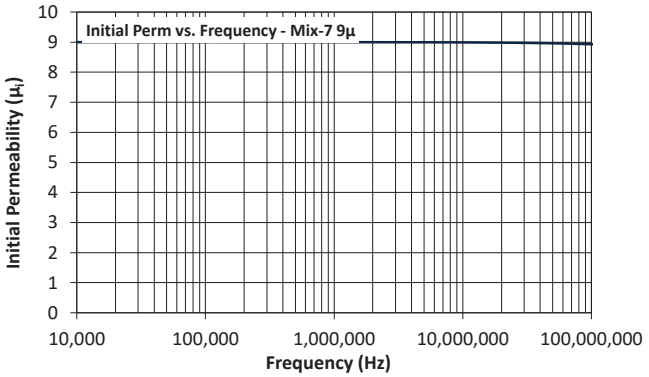
a=1.00E-02, b=1.48E-07, c=1.46, d=0.00



$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

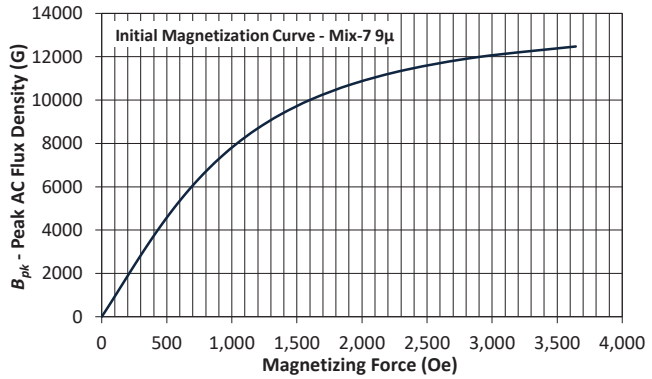
a=1.57E+03, b=4.50E-01, c=1.25E+00, d=1.16E+17, e=-3.70E+00, f=1.07E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

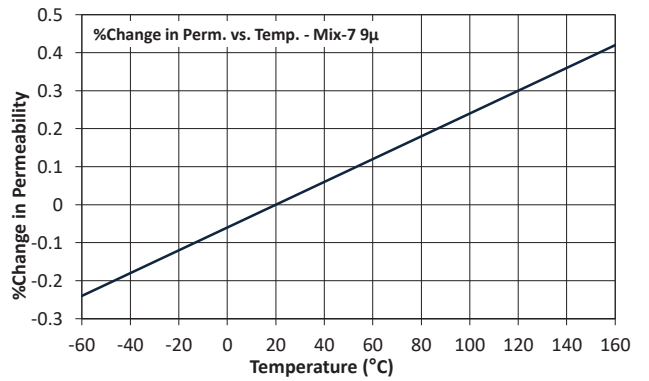
a=1.25E-01, b=7.01E-11, c=9.00E-01, d=1.00E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=1.35E-03, b=1.96E+00, c=2.19E+04, d=9.18E-04, e=1.62E+03



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

a=30

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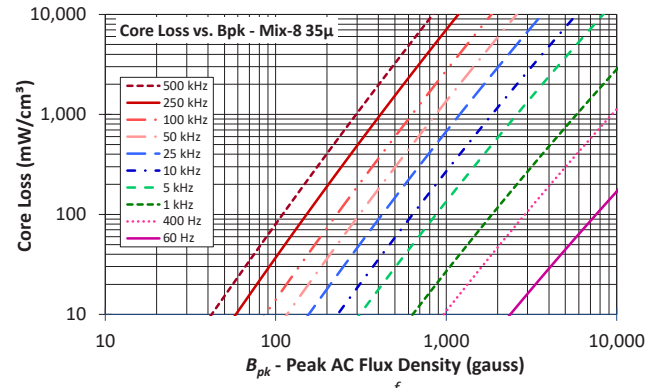
-8 material is an annealed carbonyl iron providing the highest carbonyl permeability. It is useful for high Q applications below 1 MHz and provides the broadest band transformers covering a typical range from 40 to 250 MHz. This material has good linearity both under high bias conditions and frequencies, making it a good choice for high frequency differential mode EMI filters.

Mix:	-8

Revision 2023-Dec-15 - Generated 2023-Dec-15

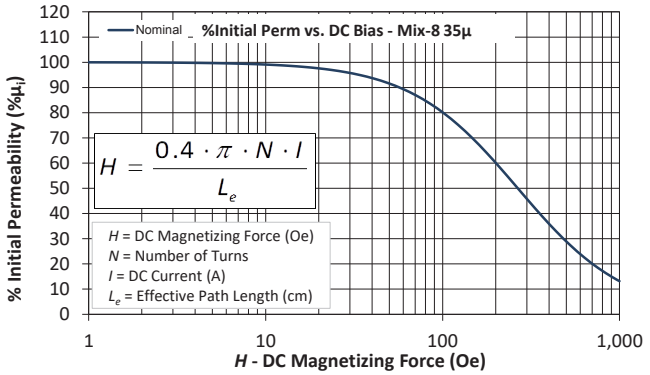
µi(reference)	35
Typical AL tolerance	± 10%
Color Code	Yellow/Red
Density	6.5 g/cm³
Bsat	17.6kG
Core Loss (100kHz, 140g)	32 mW/cm³ (nom) 36 mW/cm³ (max)
%Perm at DC Bias (200 Oe)	60.1% (nom) 53.7% (min)



$$\text{Core Loss (mW/cm}^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

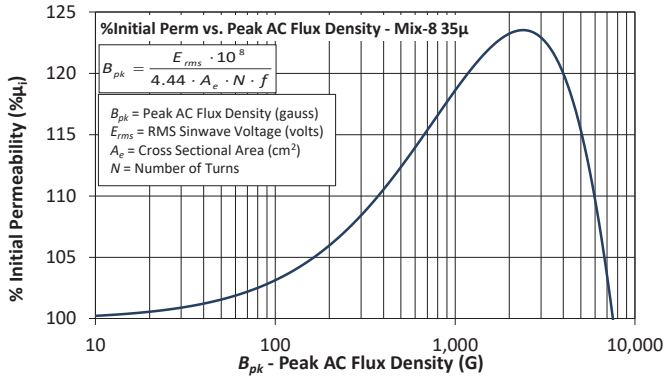
a=1.90E+09, b=2.00E+08, c=9.00E+05, d=5.00E-15



$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

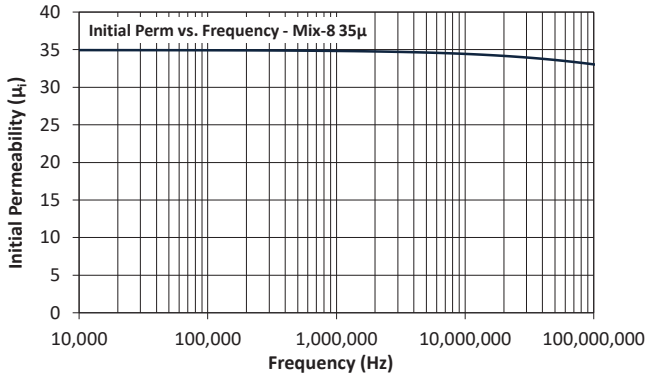
a=1.00E-02, b=3.49E-06, c=1.43, d=0.00



$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

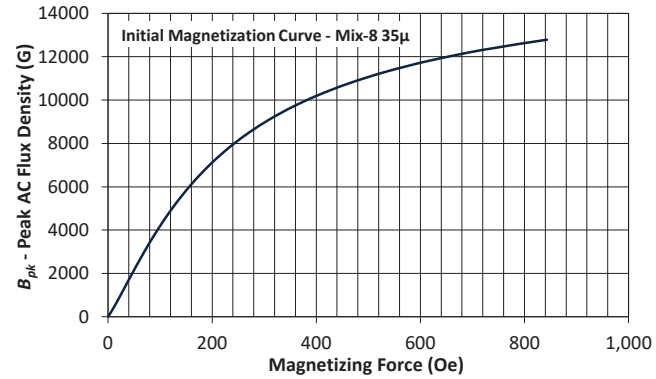
a=3.50E+02, b=3.78E-01, c=1.03E+00, d=1.76E+10, e=-1.98E+00, f=1.40E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

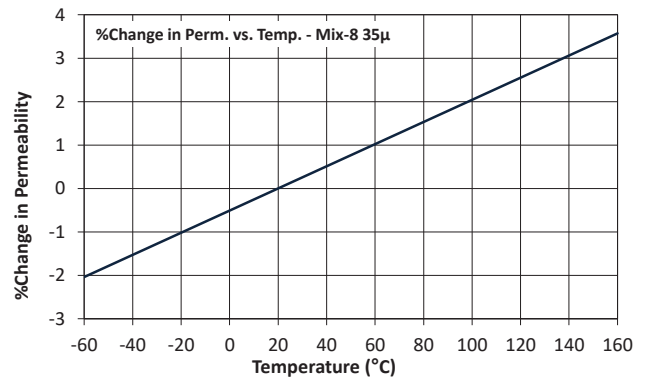
a=1.27E-01, b=1.98E-07, c=6.64E-01, d=2.70E+01



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=4.36E-02, b=1.74E+00, c=3.26E+01, d=5.86E-01, e=5.04E+02



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

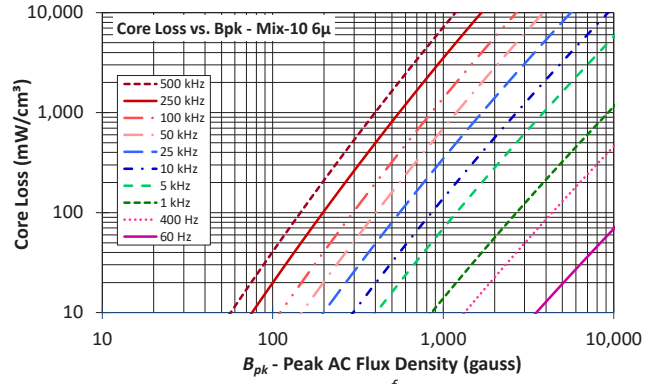
a=255

-10 material is a high frequency carbonyl iron. It provides high Q up to 150 MHz and is a popular material for cable television applications.-10 low initial permeability and low losses make it suitable for inductors in high frequency resonant converters and for producing moderate band transformers covering 400 to 700 MHz.

Mix:	-10

Revision 2023-Dec-15 - Generated 2023-Dec-15

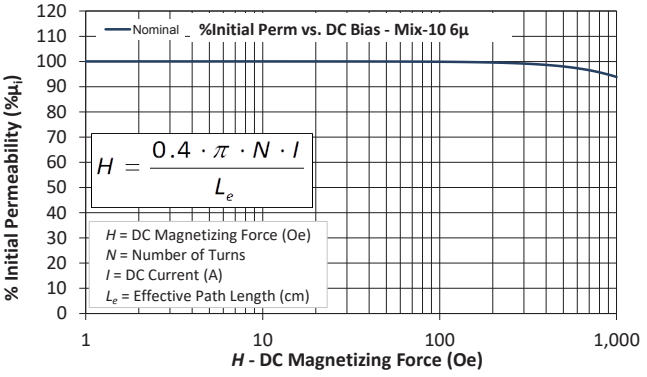
µi(reference)	6
Typical AL tolerance	± 5%
Color Code	Black/Clear
Density	4.5 g/cm³
Bsat	13.8kG
Core Loss (100kHz, 140g)	18 mW/cm³ (nom) 20 mW/cm³ (max)
%Perm at DC Bias (200 Oe)	99.6% (nom) 99.4% (min)



$$\text{Core Loss (mW/cm}^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

a=4.00E+09, b=3.00E+08, c=2.70E+06, d=8.00E-16

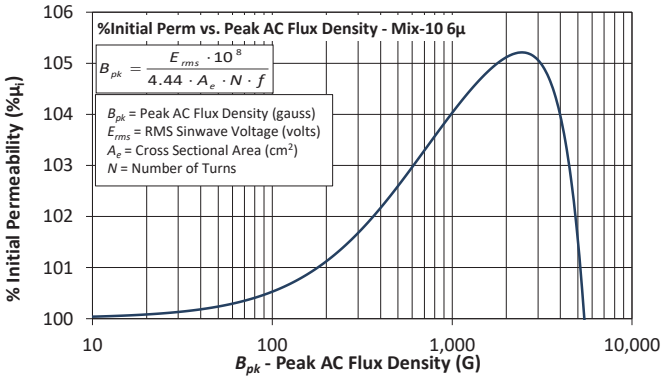


$$H = \frac{0.4 \cdot \pi \cdot N \cdot I}{L_e}$$

$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

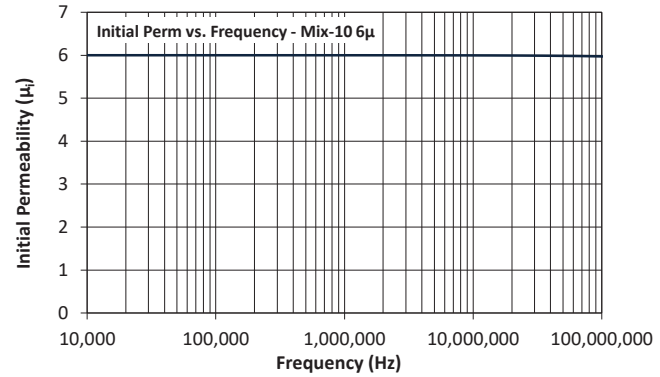
a=1.00E-02, b=5.54E-09, c=1.69, d=0.00



$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

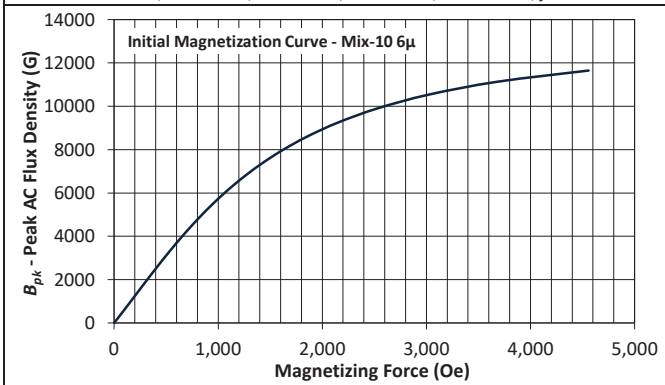
a=1.57E+03, b=4.50E-01, c=1.25E+00, d=1.16E+17, e=-3.70E+00, f=1.07E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

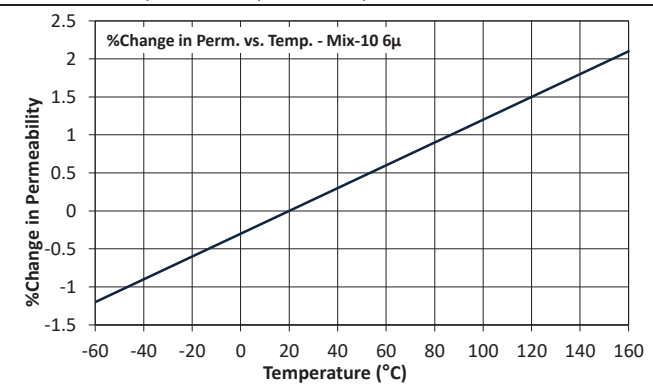
a=2.00E-01, b=7.01E-11, c=9.00E-01, d=1.00E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=9.13E-04, b=1.96E+00, c=3.83E+04, d=9.23E-04, e=2.30E+03



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

a=150

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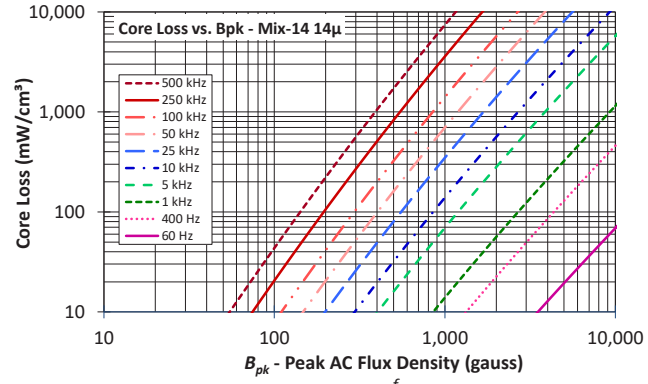
-14 material has low permeability resulting in a lower operating AC flux density than other materials with no additional gap-loss. It is useful in high frequency power and resonant inductors where it provides lower core losses and better DC bias performance compared to powdered alloy cores with the same permeability. Consider using-2 as a lower permeability alternative in applications where AC flux density has to be limited to lower values.

Mix:	-14

Revision 2023-Dec-15 - Generated 2023-Dec-15

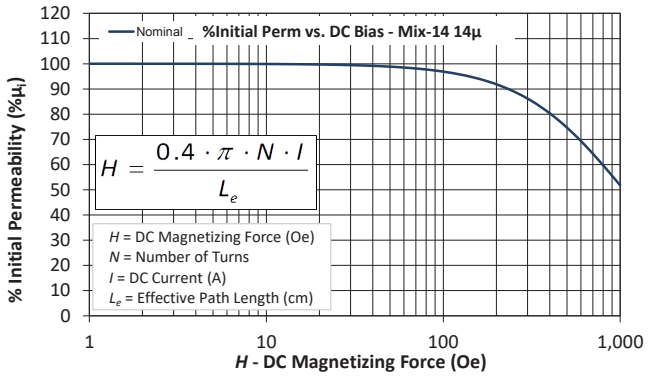
µi(reference)	14
Typical AL tolerance	± 10%
Color Code	Black/Red
Density	5.2 g/cm³
Bsat	15.2kG
Core Loss (100kHz, 140g)	18 mW/cm³ (nom) 21 mW/cm³ (max)
%Perm at DC Bias (200 Oe)	91.8% (nom) 89.6% (min)



$$\text{Core Loss (mW/cm}^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

a=4.00E+09, b=3.00E+08, c=2.70E+06, d=1.92E-15

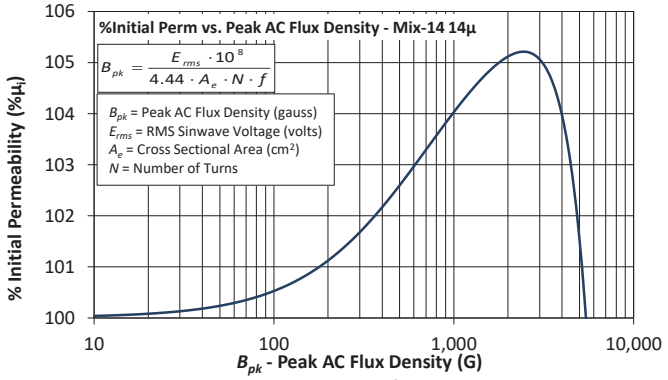


$$H = \frac{0.4 \cdot \pi \cdot N \cdot I}{L_e}$$

$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

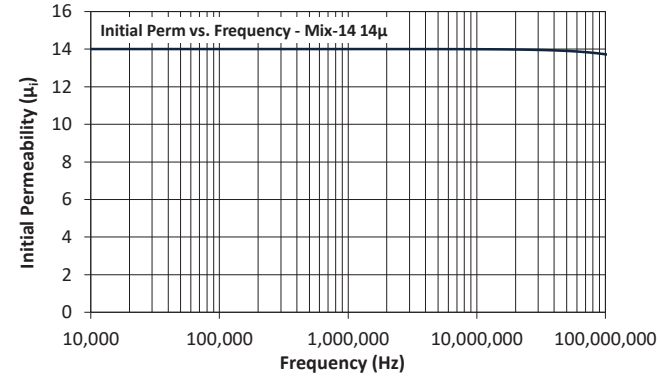
a=1.00E-02, b=3.90E-07, c=1.46, d=0.00



$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

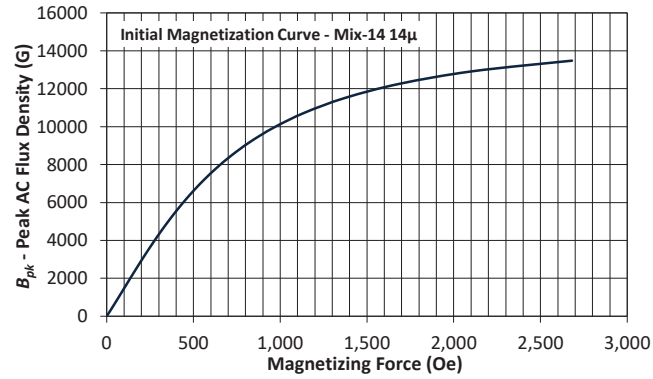
a=1.57E+03, b=4.50E-01, c=1.25E+00, d=1.16E+17, e=-3.70E+00, f=1.07E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

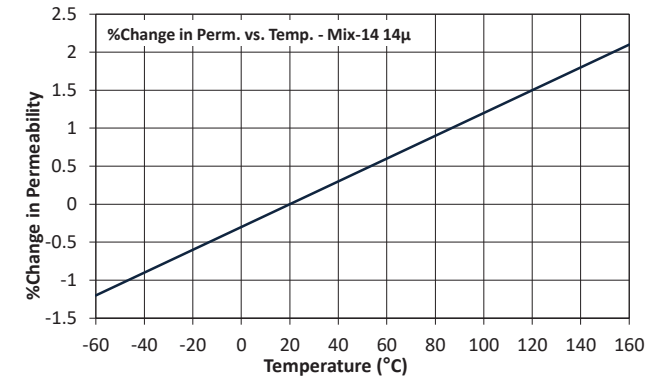
a=8.67E-02, b=1.45E-15, c=1.52E+00, d=2.47E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=2.90E-03, b=1.91E+00, c=5.26E+02, d=4.97E-01, e=1.09E+03



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

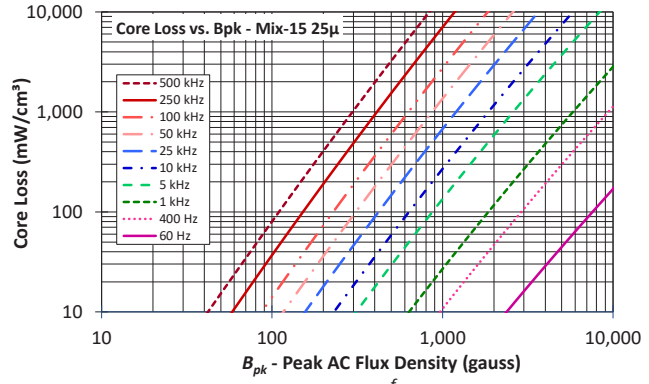
a=150

-15 material is an annealed carbonyl iron providing a high initial permeability. It is useful for high Q applications below 1MHz. The-15 is a lower permeability alternative to the-3 or a higher permeability alternative to-1 materials.

Mix:	-15

Revision 2023-Dec-15 - Generated 2023-Dec-15

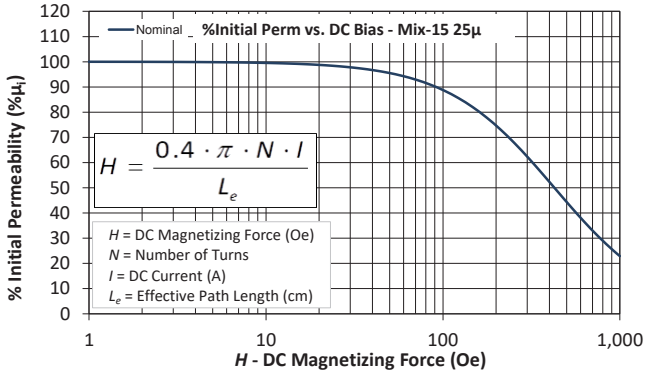
µi(reference)	25
Typical AL tolerance	± 10%
Color Code	Red/White
Density	6.4 g/cm³
Bsat	17.5kG
Core Loss (100kHz, 140g)	32 mW/cm³ (nom) 36 mW/cm³ (max)
%Perm at DC Bias (200 Oe)	74.7% (nom) 69.4% (min)



$$Core\ Loss\ (mW/cm^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

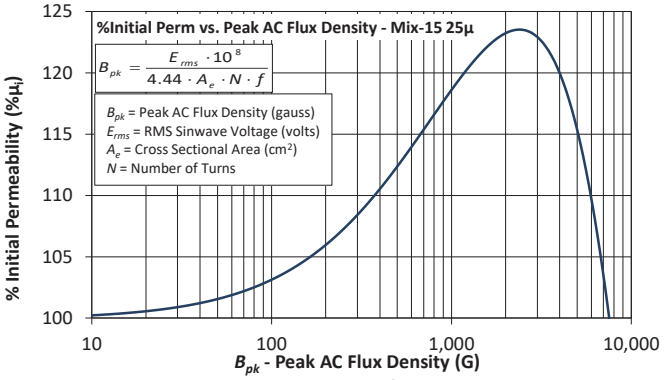
a=1.90E+09, b=2.00E+08, c=9.00E+05, d=5.00E-15



$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

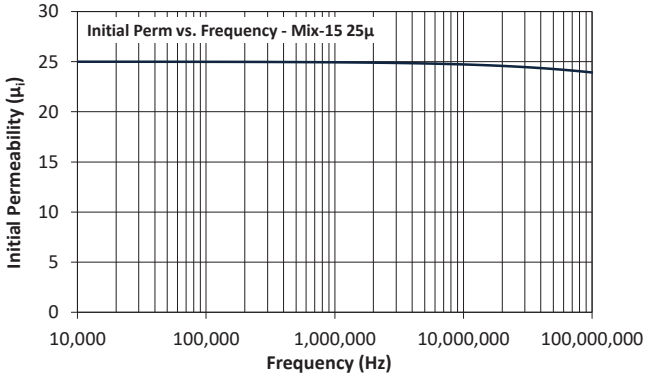
a=1.00E-02, b=1.78E-06, c=1.43, d=0.00



$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

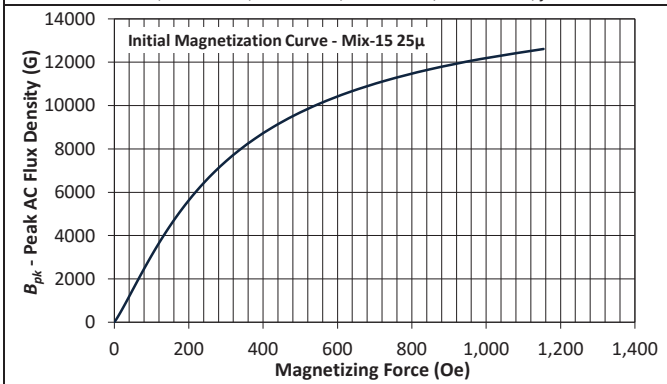
a=3.50E+02, b=3.78E-01, c=1.03E+00, d=1.76E+10, e=-1.98E+00, f=1.40E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

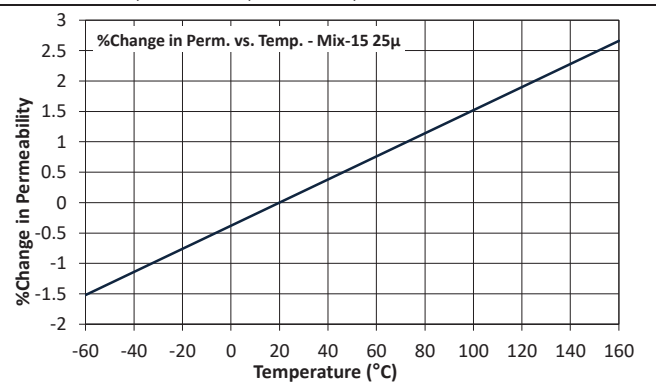
a=1.75E-01, b=1.98E-07, c=6.64E-01, d=1.93E+01



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=3.18E-02, b=1.75E+00, c=4.23E+01, d=5.67E-01, e=6.98E+02



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

a=190

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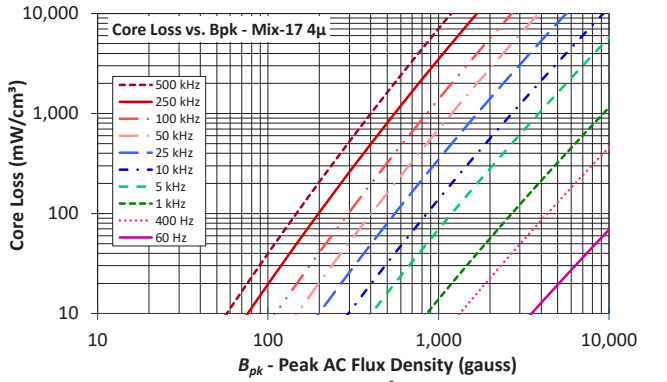
-17 material is the highest frequency carbonyl iron offered by Micrometals. It provides high Q up to 150 MHz and is a popular material for cable television applications and resonant power conversion. Due to its low initial permeability, high linearity and low losses,-17 based inductors can serve as a substitute to air core inductors below 50MHz, providing superior performance. -17 can be used for moderate band transformers covering 400 to 700 MHz.

Mix:	-17

Revision 2023-Dec-15 - Generated 2023-Dec-15

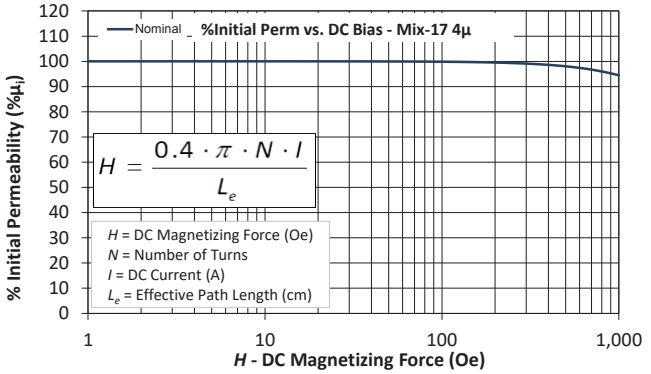
µi(reference)	4
Typical AL tolerance	± 5%
Color Code	Blue/Yellow
Density	4.0 g/cm³
Bsat	12.8kG
Core Loss (100kHz, 140g)	18 mW/cm³ (nom) 20 mW/cm³ (max)
%Perm at DC Bias (200 Oe)	99.5% (nom) 99.4% (min)



$$\text{Core Loss (mW/cm}^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

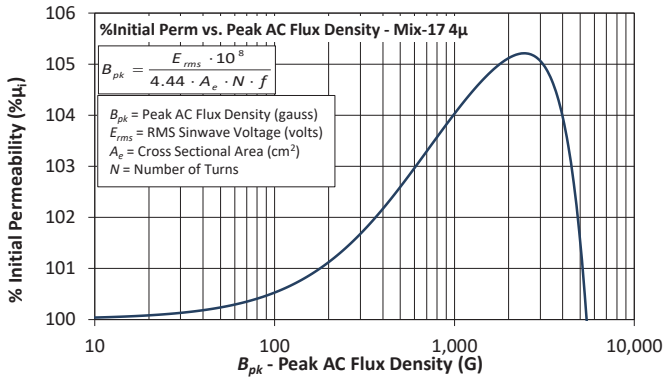
a=4.00E+09, b=3.00E+08, c=2.70E+06, d=4.40E-16



$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

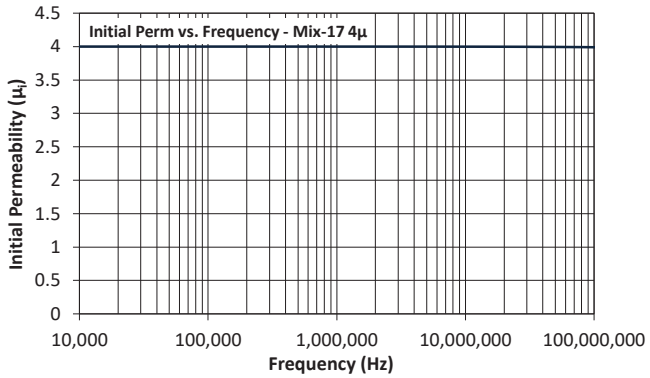
a=1.00E-02, b=1.34E-08, c=1.55, d=0.00



$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

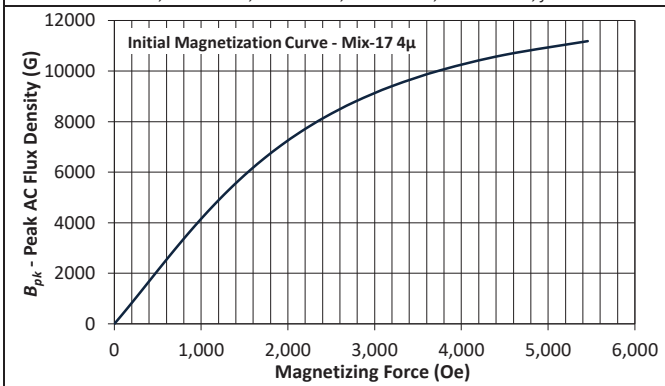
a=1.57E+03, b=4.50E-01, c=1.25E+00, d=1.16E+17, e=-3.70E+00, f=1.07E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

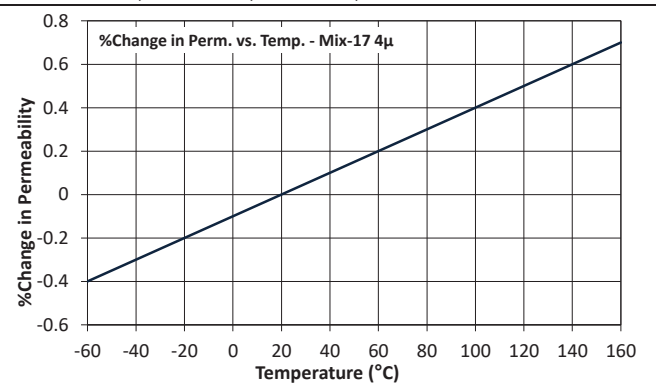
a=3.33E-01, b=7.01E-11, c=9.00E-01, d=1.00E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=4.51E-04, b=2.03E+00, c=9.96E+08, d=1.58E-01, e=3.20E+03



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

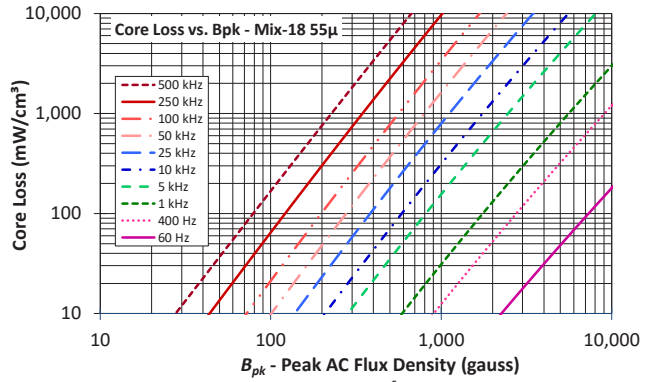
a=50

-18 material has a core loss similar to the-8 Material with higher permeability at a lower cost. It features good DC bias characteristics and is a popular choice for differential mode EMI filters.

Mix:	-18

Revision 2023-Dec-15 - Generated 2023-Dec-15

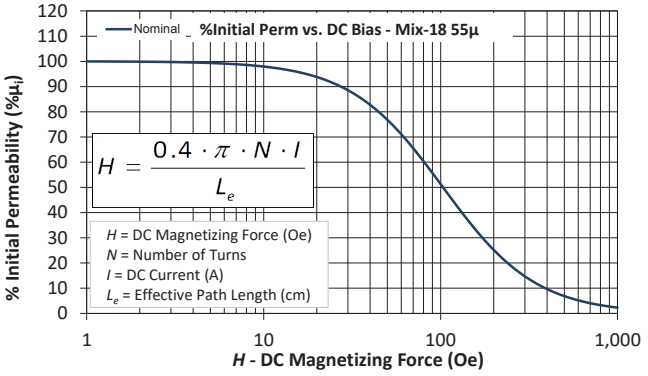
µi(reference)	55
Typical AL tolerance	± 10%
Color Code	Green/Red
Density	6.6 g/cm³
Bsat	17.8kG
Core Loss (100kHz, 140g)	46 mW/cm³ (nom) 53 mW/cm³ (max)
%Perm at DC Bias (100 Oe)	51.4% (nom) 43.9% (min)



$$\text{Core Loss } (mW/cm^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

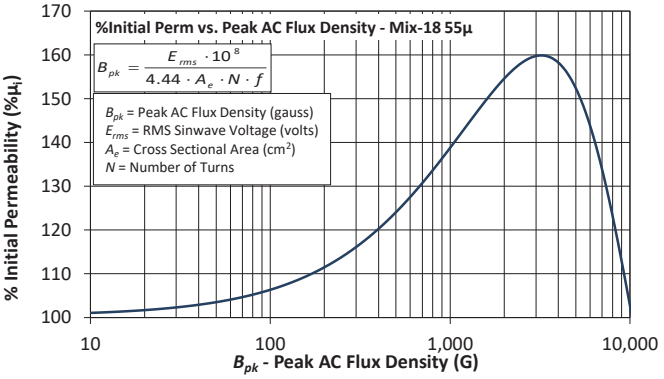
a=8.00E+08, b=1.70E+08, c=9.00E+05, d=3.10E-14



$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

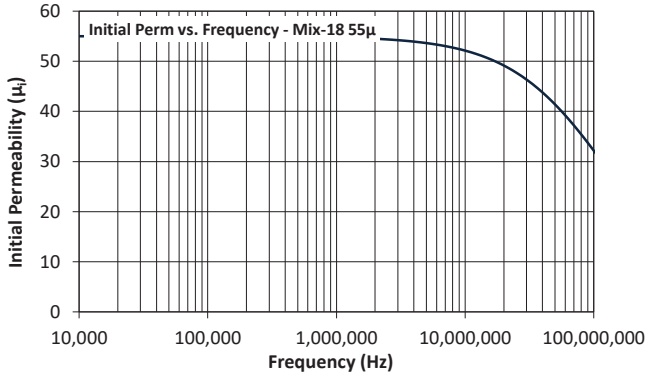
a=1.00E-02, b=4.72E-06, c=1.65, d=0.00



$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

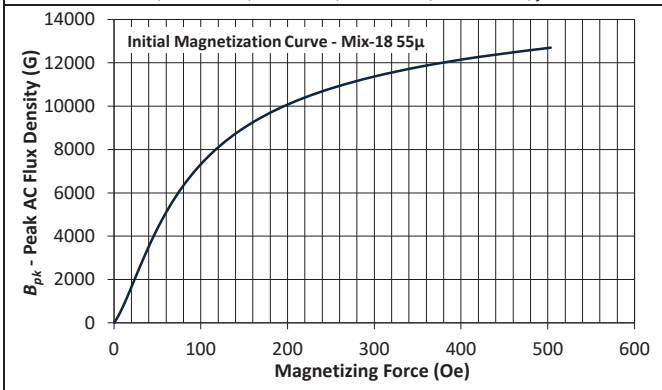
a=1.84E+02, b=2.45E-01, c=9.67E-01, d=3.53E+10, e=-2.06E+00, f=2.21E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

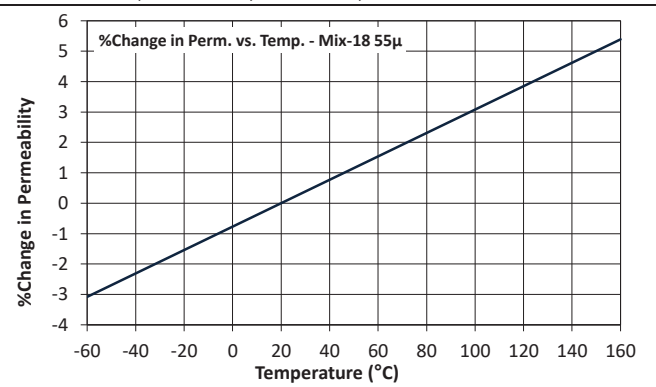
a=1.82E-02, b=1.70E-11, c=1.11E+00, d=0.00E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=6.81E-02, b=1.92E+00, c=3.25E+01, d=5.27E-01, e=3.24E+02



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

a=385

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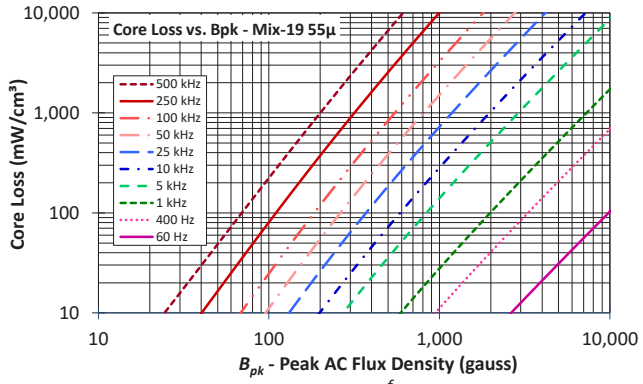
-19 material is a lower cost alternative to the-18 material. It has the same initial permeability as the-18, with slightly higher core losses, slightly more stable DC bias performance and faster roll-off in permeability with frequency. This is an economical material for differential mode EMI filters operating up to 30MHz.

Mix:	-19

Revision 2023-Dec-15 - Generated 2023-Dec-15

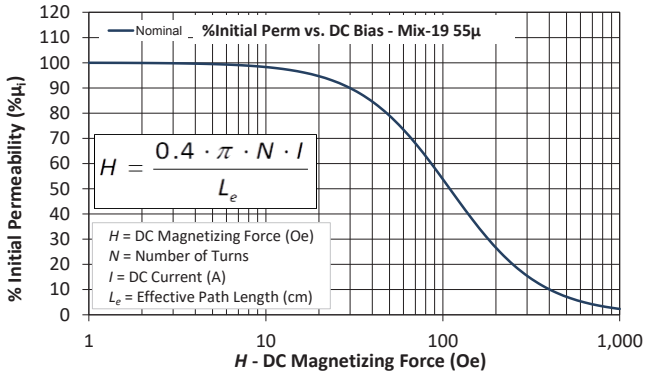
µi(reference)	55
Typical AL tolerance	± 10%
Color Code	Red/Green
Density	6.8 g/cm³
Bsat	18.2kG
Core Loss (100kHz, 140g)	54 mW/cm³ (nom) 62 mW/cm³ (max)
%Perm at DC Bias (100 Oe)	53.8% (nom) 46.2% (min)



$$Core\ Loss\ (mW/cm^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

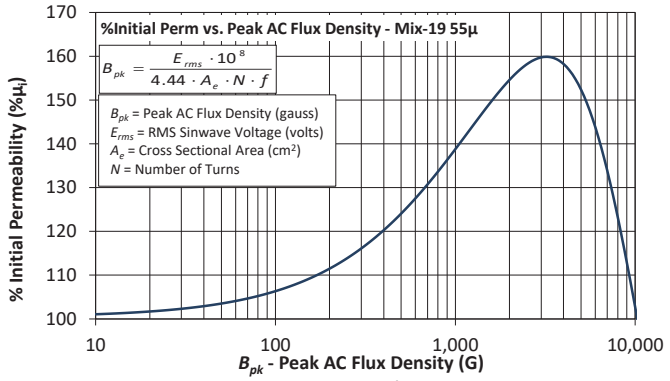
a=1.90E+09, b=8.40E+07, c=2.10E+06, d=5.00E-14



$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

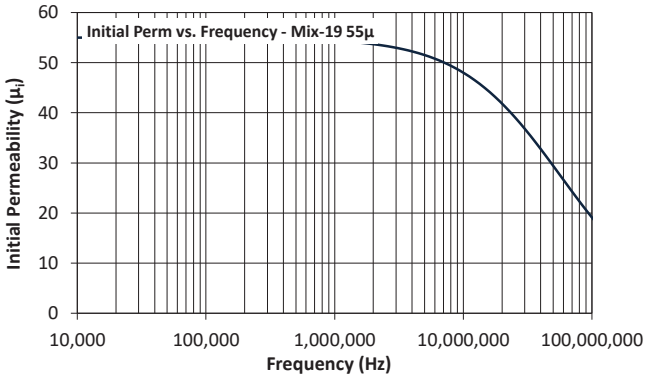
a=1.00E-02, b=3.60E-06, c=1.69, d=0.00



$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

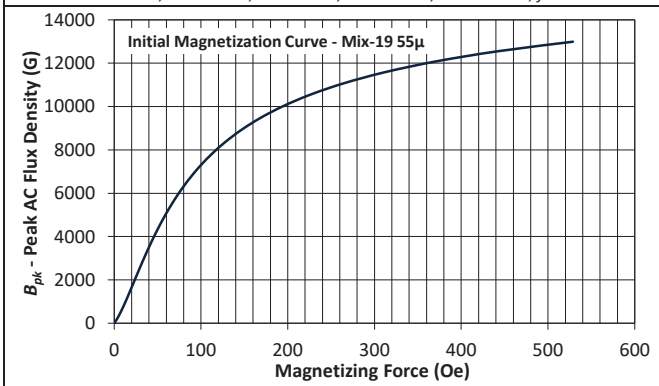
a=1.84E+02, b=2.45E-01, c=9.67E-01, d=3.53E+10, e=-2.06E+00, f=2.21E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

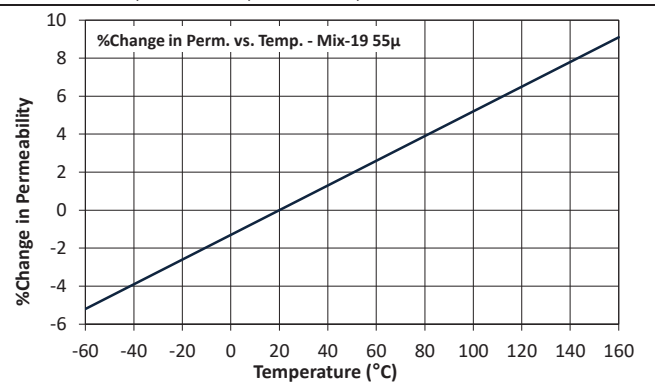
a=1.82E-02, b=4.50E-11, c=1.11E+00, d=0.00E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=7.24E-02, b=1.92E+00, c=2.81E+01, d=5.51E-01, e=3.30E+02



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

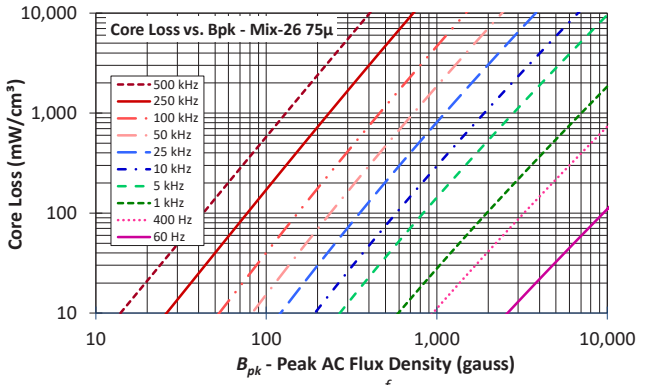
a=650

-26 material is a cost-effective, general purpose material. It's high saturation flux density, high amplitude permeability and good dampening performance make it ideal for line filter applications. The-26 is also a popular material for dimmer and inrush current limiter inductors.

Mix:	-26

Revision 2023-Dec-15 - Generated 2023-Dec-15

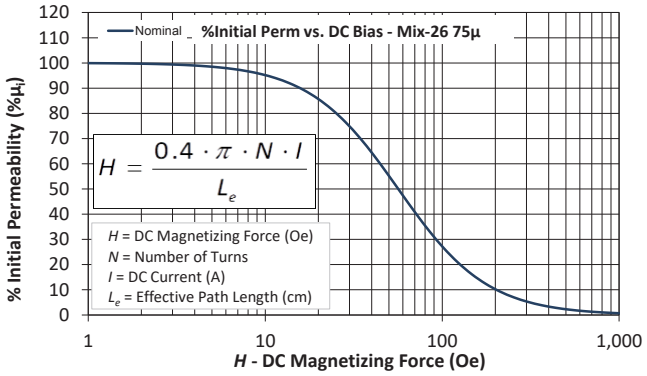
µi(reference)	75
Typical AL tolerance	± 10%
Color Code	Yellow/White
Density	7.0 g/cm³
Bsat	18.5kG
Core Loss (100kHz, 140g)	83 mW/cm³ (nom) 95 mW/cm³ (max)
%Perm at DC Bias (50 Oe)	55.2% (nom) 47.4% (min)



$$Core\ Loss\ (mW/cm^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

a=1.00E+09, b=1.10E+08, c=1.90E+06, d=1.90E-13

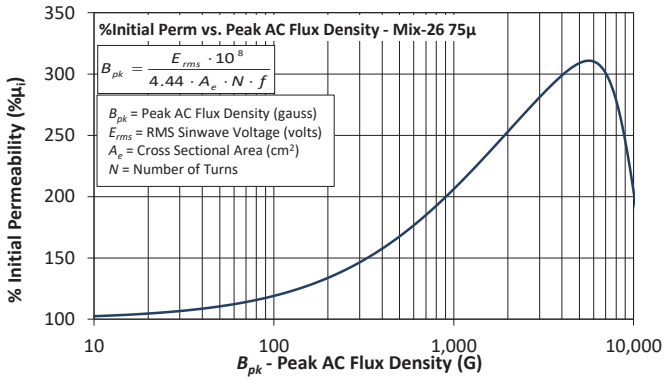


$$H = \frac{0.4 \cdot \pi \cdot N \cdot I}{L_e}$$

$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

a=1.00E-02, b=9.70E-06, c=1.72, d=0.00

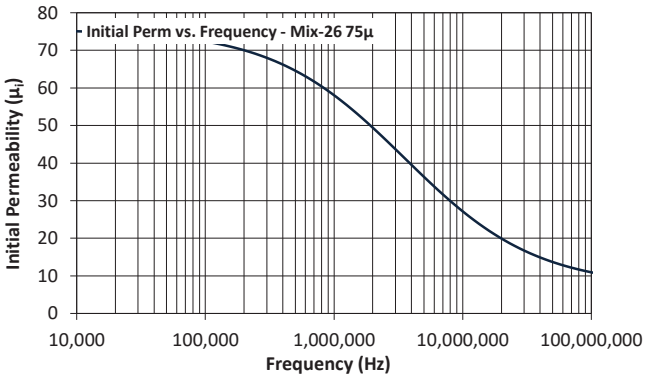


$$B_{pk} = \frac{E_{rms} \cdot 10^8}{4.44 \cdot A_e \cdot N \cdot f}$$

$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

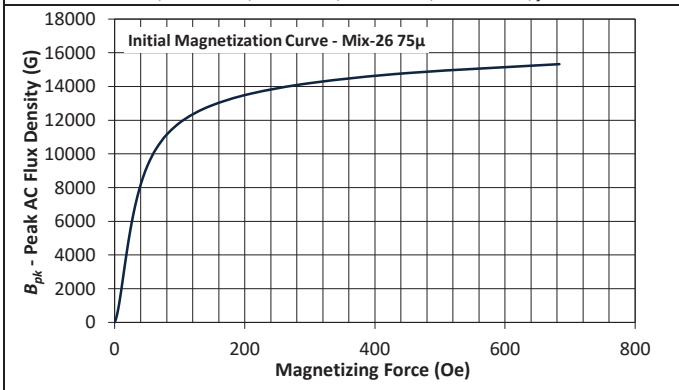
a=1.32E+02, b=5.71E-01, c=8.96E-01, d=1.45E+23, e=-5.12E+00, f=4.14E+02



$$\mu_i = \frac{1}{a + bf^c} + d$$

where f expressed in hertz, and:

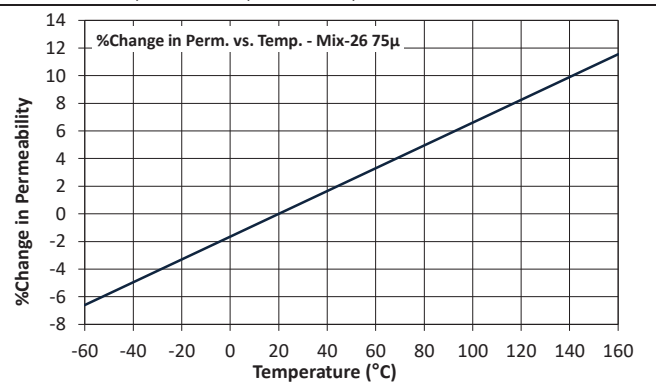
a=1.46E-02, b=4.13E-08, c=8.47E-01, d=7.15E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=1.87E-01, b=2.08E+00, c=7.12E+01, d=4.32E-01, e=2.47E+02



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

a=825

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-30 material has the lowest permeability of all non-carbonyl iron mix materials. The material's low permeability, low cost and high linearity make it a popular choice for high energy storage inductors used in uninterrupted power supplies (UPS) or high-current filters. It replaces the-28 material.

Mix:	-30

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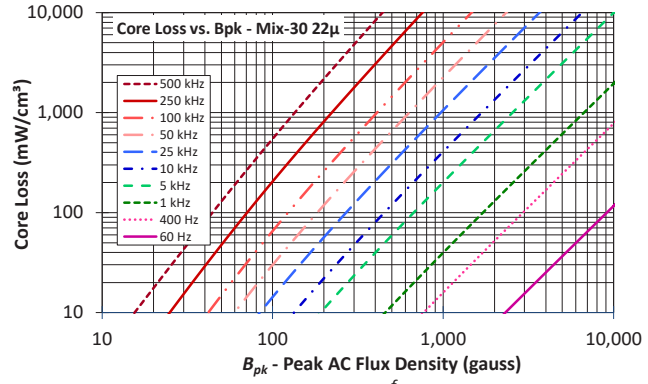
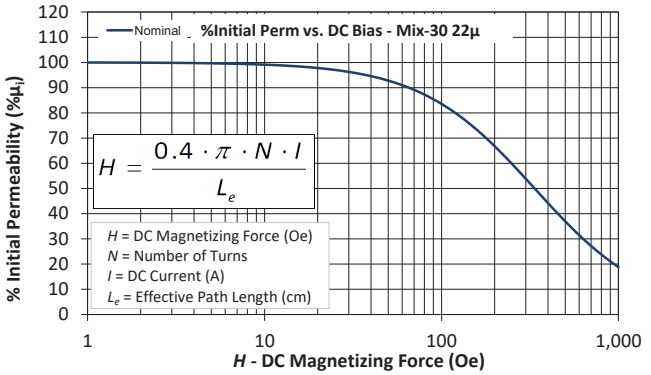
µi(reference)	22
Typical AL tolerance	± 10%
Color Code	Green/Gray
Density	6.0 g/cm³
Bsat	16.7kG
Core Loss (100kHz, 140g)	129 mW/cm³ (nom) 149 mW/cm³ (max)
%Perm at DC Bias (200 Oe)	66.7% (nom) 61.1% (min)



$$\text{Core Loss (mW/cm}^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

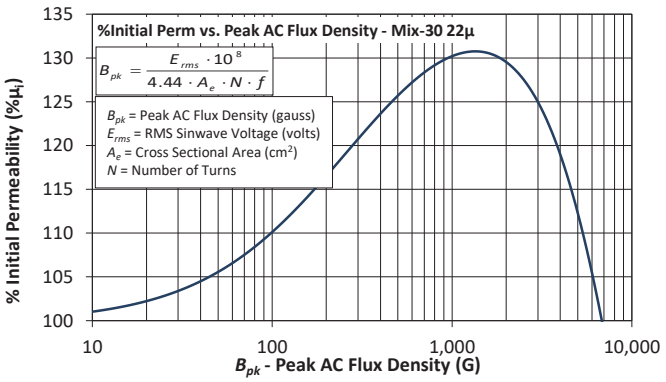
a=3.30E+08, b=2.00E+07, c=2.00E+06, d=1.10E-13



$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

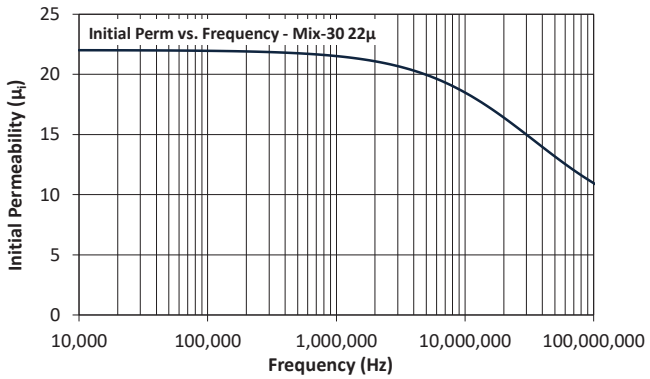
a=1.00E-02, b=4.10E-06, c=1.34, d=0.00



$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

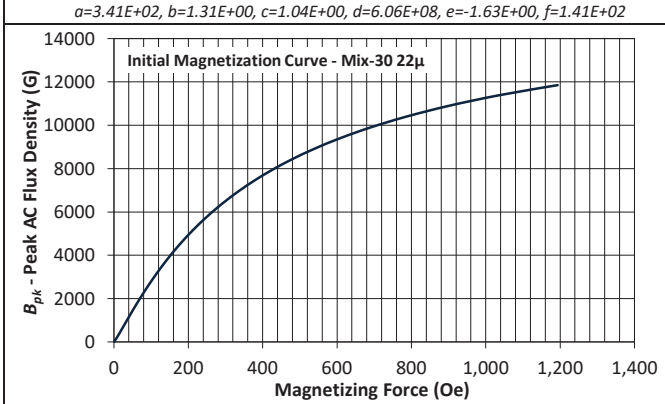
a=3.41E+02, b=1.31E+00, c=1.04E+00, d=6.06E+08, e=-1.63E+00, f=1.41E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

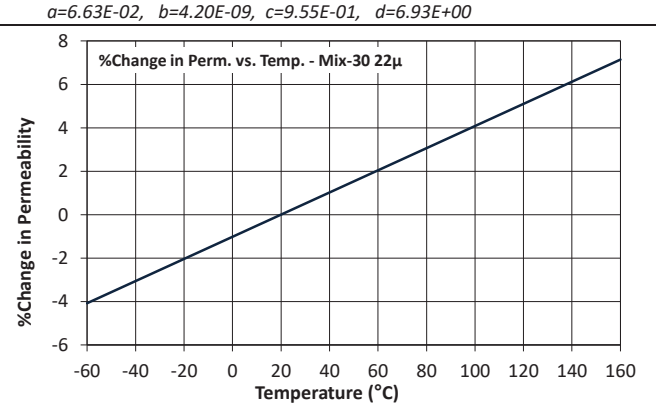
a=6.63E-02, b=4.20E-09, c=9.55E-01, d=6.93E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=1.87E-01, b=1.52E+00, c=7.61E+00, d=8.05E-01, e=7.60E+02



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

a=510

Mix:	-34

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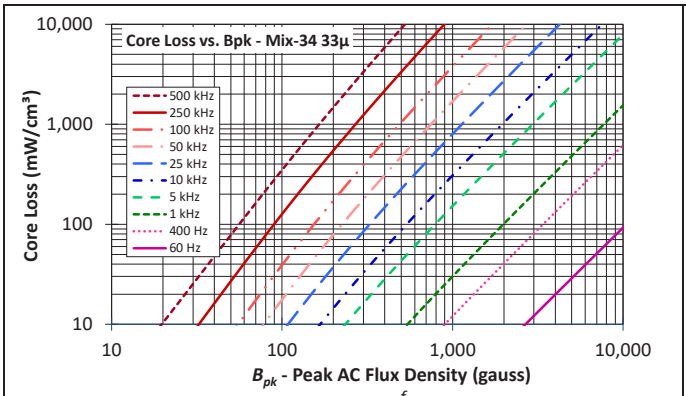
-34 material is an economical alternative to the-8 material where high frequency core loss is not critical. It features slightly lower core losses compared to the-35. Consider using the-34 over the-35 material in power conversion or high frequency EMI filter applications. It replaces the-33 material.

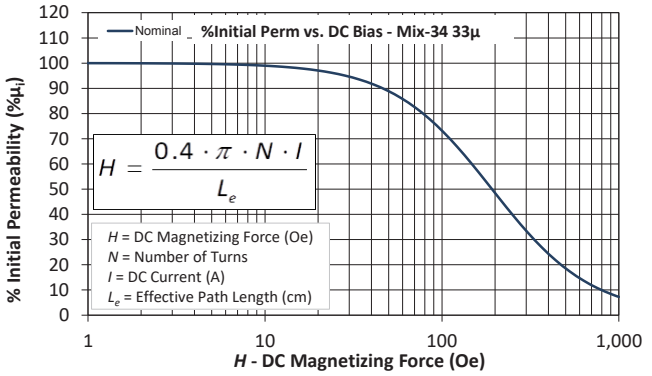
µi(reference)	33
Typical AL tolerance	± 10%
Color Code	Gray/Blue
Density	6.2 g/cm³
Bsat	17.1kG
Core Loss (100kHz, 140g)	82 mW/cm³ (nom) 94 mW/cm³ (max)
%Perm at DC Bias (100 Oe)	73.2% (nom) 67.4% (min)



$$\text{Core Loss (mW/cm}^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

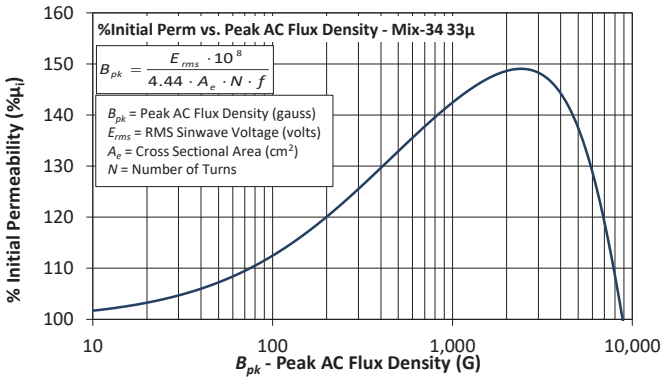
a=1.10E+09, b=3.30E+07, c=2.50E+06, d=7.70E-14



$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

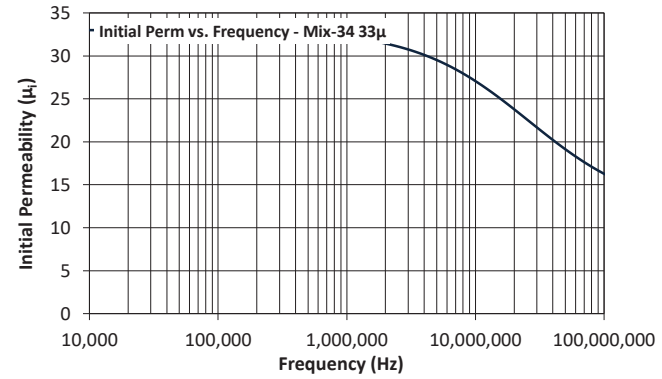
a=1.00E-02, b=3.00E-06, c=1.54, d=0.00



$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

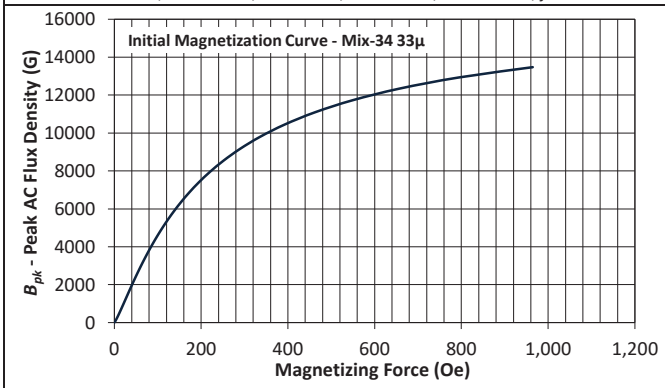
a=2.53E+02, b=1.55E+00, c=9.06E-01, d=1.08E+12, e=-2.44E+00, f=1.65E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

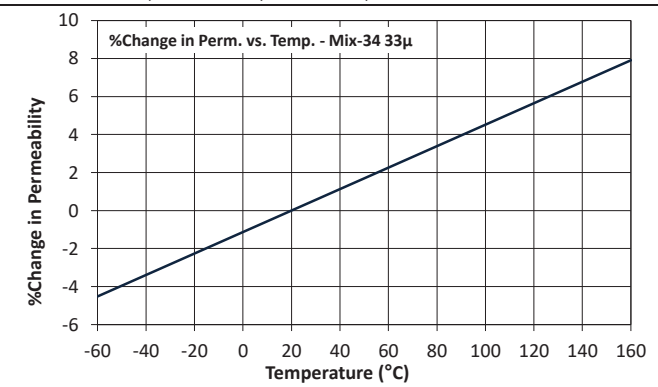
a=4.72E-02, b=2.39E-09, c=9.84E-01, d=1.18E+01



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=1.85E-01, b=1.59E+00, c=9.52E+00, d=7.99E-01, e=5.18E+02



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

a=565

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-35 material is an economical alternative to the-8 material where high frequency core loss is not critical. It has a slightly higher saturation flux density and DC bias stability compared to the-34. Consider using the-35 over the-34 material in energy storage applications like UPS, line filters and low frequency differential mode EMI filters.

Mix:	-35

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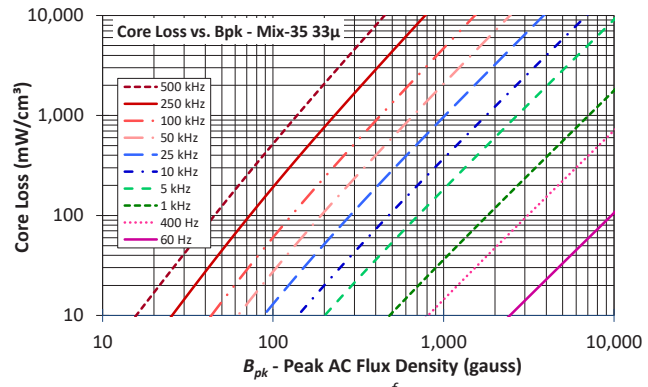
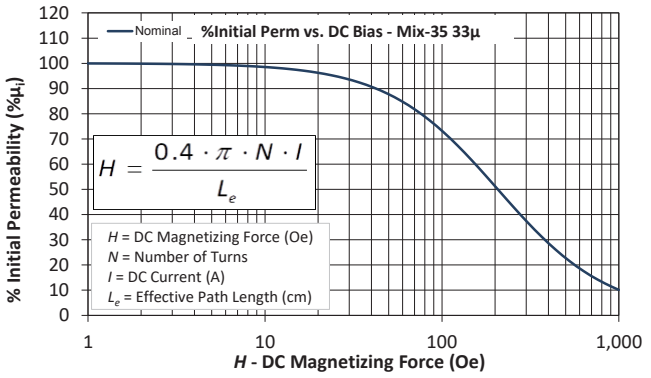
µi(reference)	33
Typical AL tolerance	± 10%
Color Code	Yellow/Gray
Density	6.3 g/cm³
Bsat	17.3kG
Core Loss (100kHz, 140g)	119 mW/cm³ (nom) 137 mW/cm³ (max)
%Perm at DC Bias (100 Oe)	73.3% (nom) 68.0% (min)



$$\text{Core Loss } (mW/cm^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

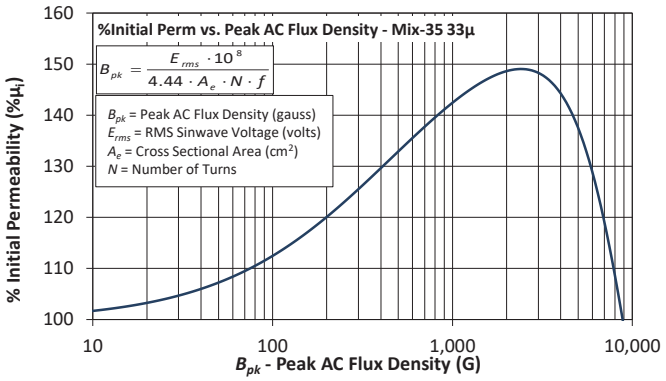
a=3.70E+08, b=2.20E+07, c=2.20E+06, d=1.10E-13



$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

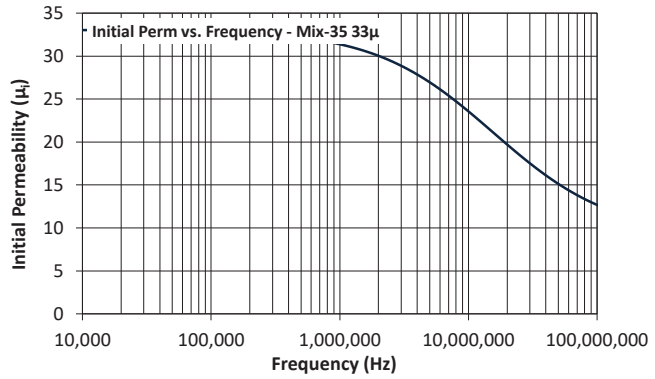
a=1.00E-02, b=6.22E-06, c=1.38, d=0.00



$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

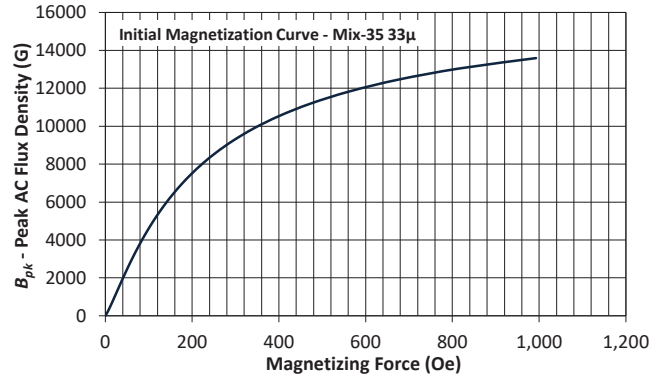
a=2.53E+02, b=1.55E+00, c=9.06E-01, d=1.08E+12, e=-2.44E+00, f=1.65E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

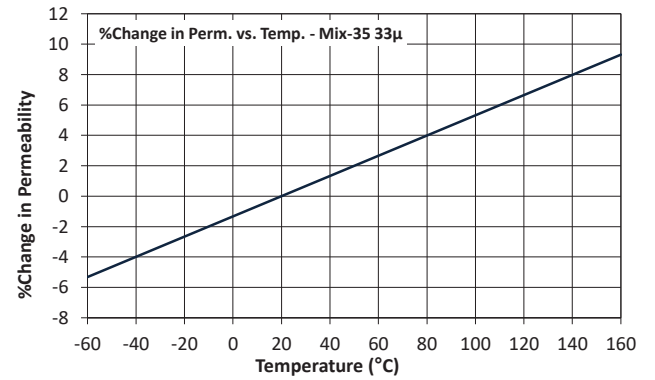
a=4.18E-02, b=7.09E-09, c=9.41E-01, d=9.13E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=1.81E-01, b=1.60E+00, c=9.75E+00, d=7.91E-01, e=5.23E+02



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

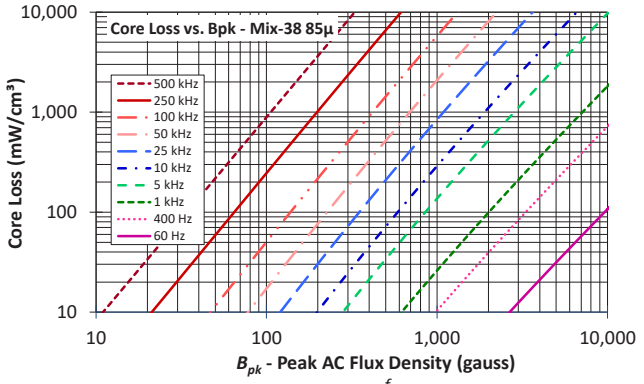
a=665

-38 material is a cost effective, general purpose material that is used in a wide variety of power conversion and line filter applications. It is similar to the-26 material but has a higher permeability and provides increased dampening. This makes the-38 suitable for line filtering, low Q inductors, dimmers and low frequency flyback converters. It can also be considered as an alternative to-45 in cost sensitive applications.

Mix:	-38

Revision 2023-Dec-15 - Generated 2023-Dec-15

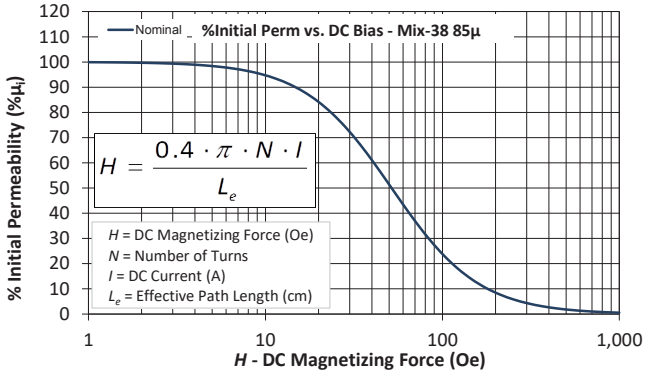
µi(reference)	85
Typical AL tolerance	± 10%
Color Code	Gray/Black
Density	7.1 g/cm³
Bsat	18.7kG
Core Loss (100kHz, 140g)	103 mW/cm³ (nom) 118 mW/cm³ (max)
%Perm at DC Bias (50 Oe)	51.4% (nom) 43.5% (min)



$$Core\ Loss\ (mW/cm^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

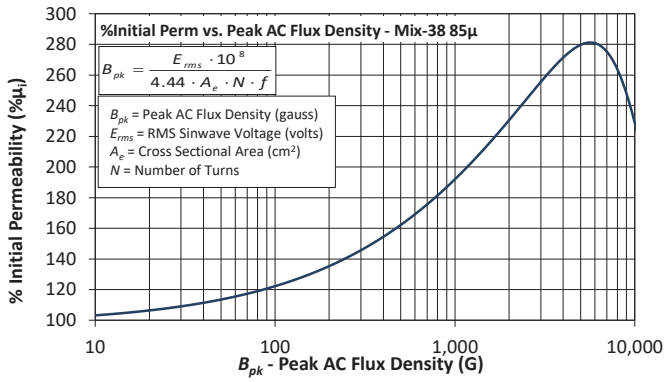
a=1.20E+09, b=1.30E+08, c=1.90E+06, d=3.20E-13



$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

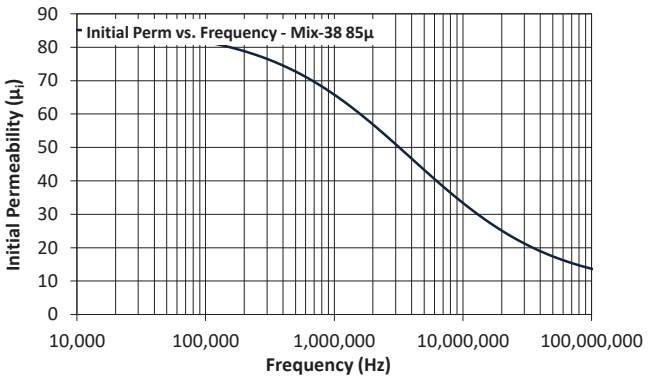
a=1.00E-02, b=9.78E-06, c=1.76, d=0.00



$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

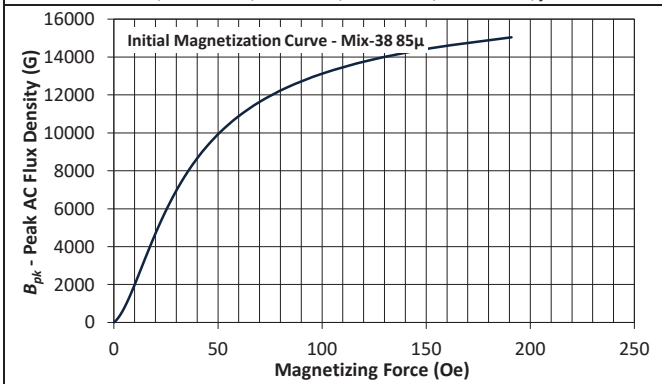
a=1.17E+02, b=1.86E+00, c=6.54E-01, d=4.70E+14, e=-2.96E+00, f=5.78E+02



$$\mu_i = \frac{1}{a + bf^c} + d$$

where f expressed in hertz, and:

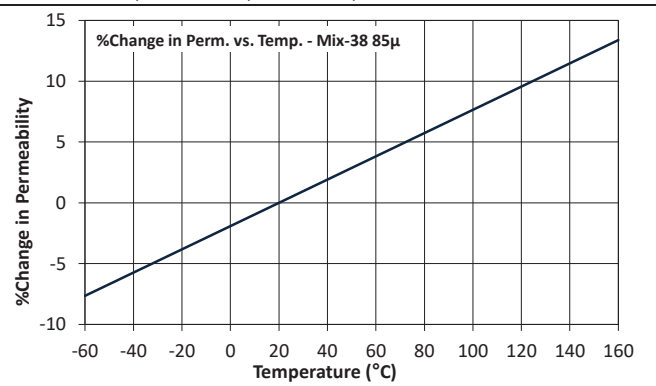
a=1.28E-02, b=1.04E-07, c=7.71E-01, d=7.71E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=2.18E-01, b=2.00E+00, c=3.41E+01, d=6.46E-01, e=2.20E+02



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

a=956

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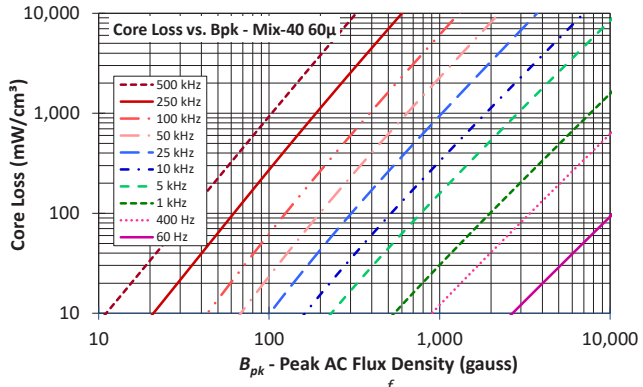
-40 material is the most economical iron powder material with characteristics similar to the-26 material but with a lower permeability. It is the most popular material for large sized cores and for a wide variety of power conversion and line filter applications.

Mix:	-40

Revision 2023-Dec-15 - Generated 2023-Dec-15

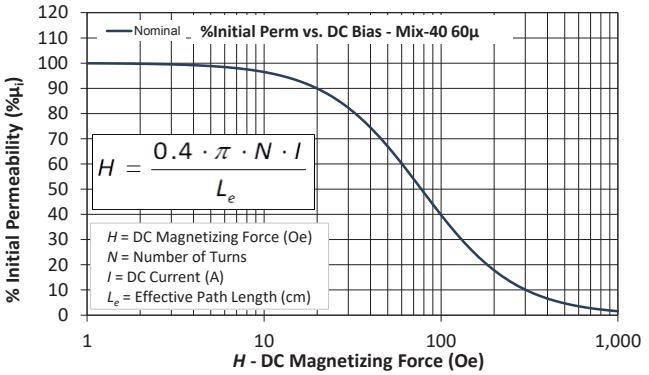
µi(reference)	60
Typical AL tolerance	± 10%
Color Code	Green/Yellow
Density	6.9 g/cm³
Bsat	18.4kG
Core Loss (100kHz, 140g)	127 mW/cm³ (nom) 146 mW/cm³ (max)
%Perm at DC Bias (50 Oe)	67.0% (nom) 60.2% (min)



$$Core\ Loss\ (mW/cm^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

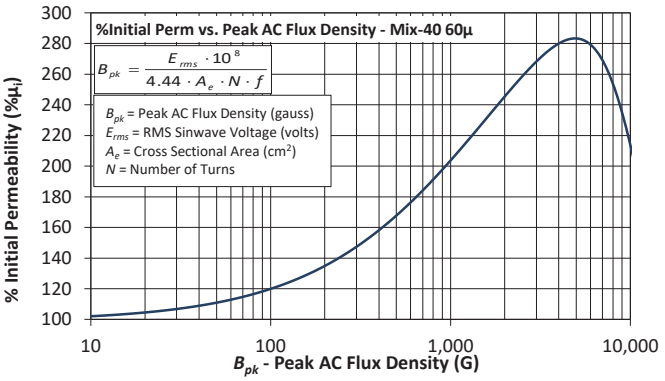
a=1.10E+09, b=3.30E+07, c=2.50E+06, d=3.10E-13



$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

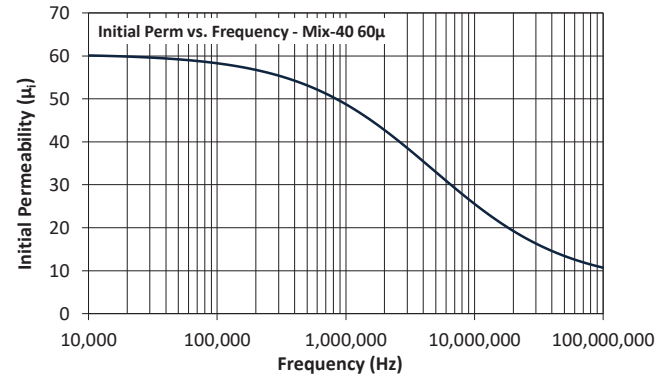
a=1.00E-02, b=8.93E-06, c=1.61, d=0.00



$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

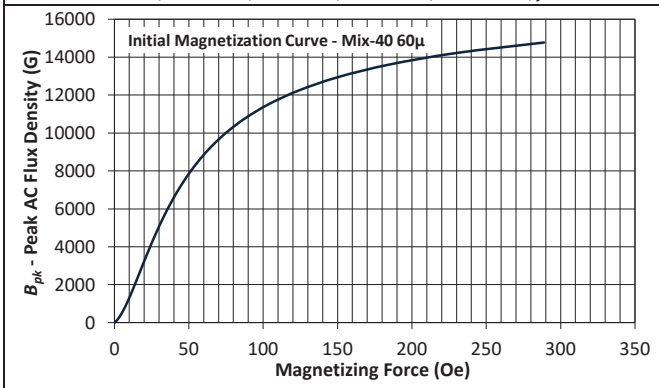
a=1.32E+02, b=7.79E-01, c=8.57E-01, d=6.95E+14, e=-3.02E+00, f=3.93E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

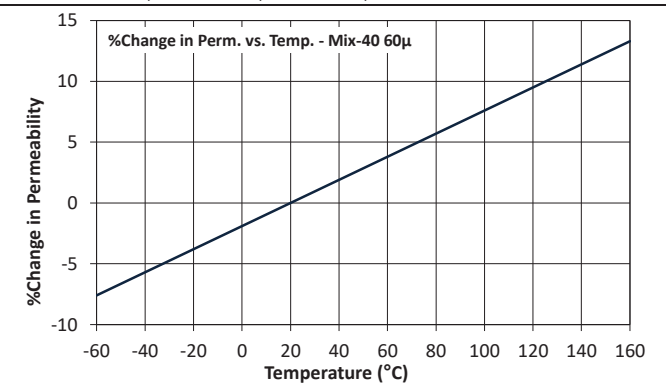
a=1.86E-02, b=5.98E-08, c=8.23E-01, d=6.64E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=1.88E-01, b=1.98E+00, c=3.20E+01, d=6.65E-01, e=3.06E+02



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

a=950

-45 material is the highest permeability iron powder material available. It is a higher permeability alternative to the-52 material but with slightly higher core losses in DC/DC converters.

Mix:	-45

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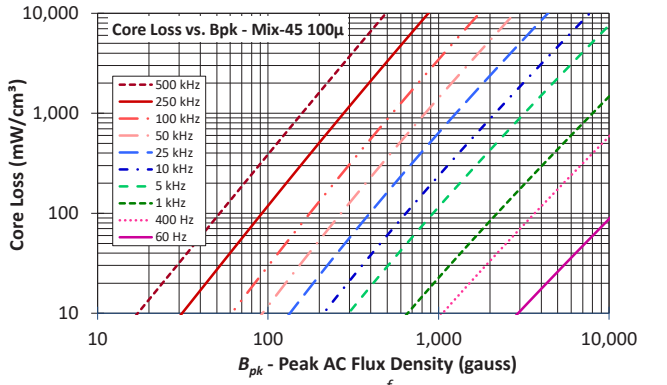
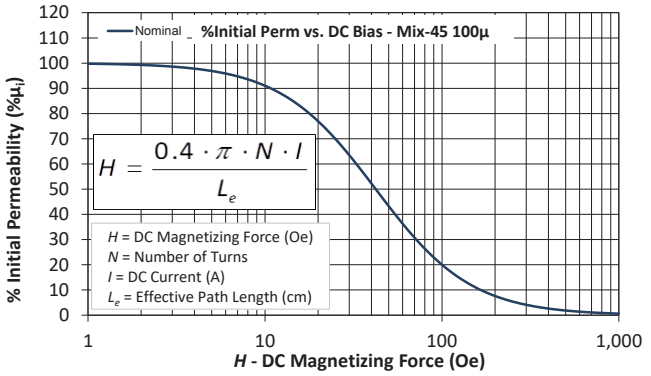
µi(reference)	100
Typical AL tolerance	± 10%
Color Code	Black/Black
Density	7.2 g/cm³
Bsat	18.9kG
Core Loss (100kHz, 140g)	61 mW/cm³ (nom) 71 mW/cm³ (max)
%Perm at DC Bias (50 Oe)	43.3% (nom) 36.3% (min)



$$Core\ Loss\ (mW/cm^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

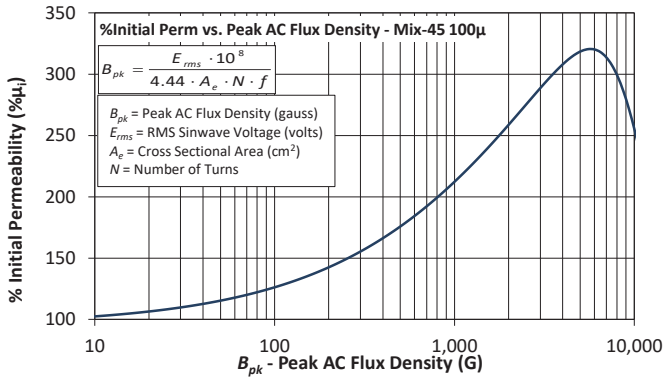
a=1.20E+09, b=1.30E+08, c=2.40E+06, d=1.20E-13



$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

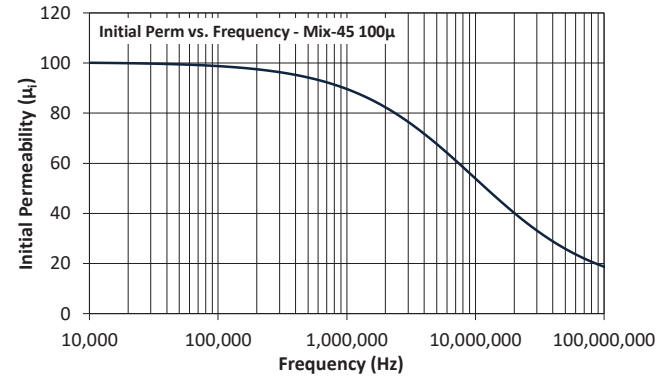
a=1.00E-02, b=2.44E-05, c=1.61, d=0.00



$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

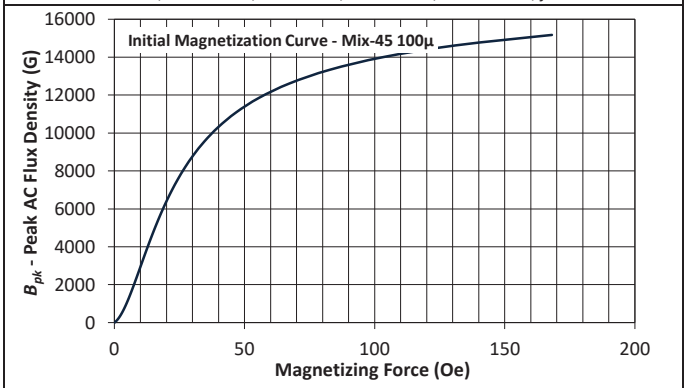
a=1.13E+02, b=2.16E+00, c=6.62E-01, d=5.49E+15, e=-3.22E+00, f=6.24E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

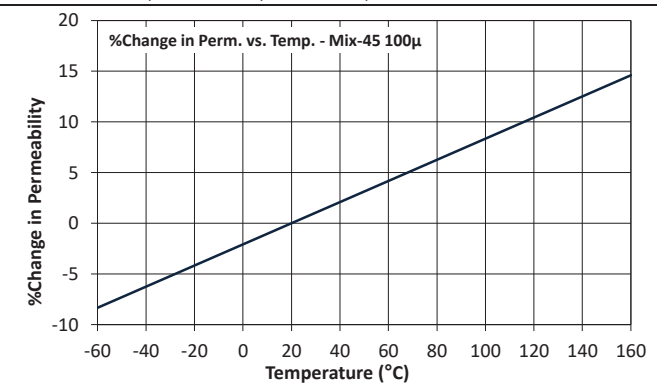
a=1.09E-02, b=6.49E-09, c=8.90E-01, d=8.43E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=3.06E-01, b=2.06E+00, c=3.92E+01, d=5.95E-01, e=1.89E+02



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

a=1043

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-52 material has the same permeability as the-26 material but has lower core losses at high frequency and more stable DC bias behavior. Consider using-52 over-26 in DC filter inductors without dampening requirements or power conversion applications. It is available in a wide variety of geometries, including highly complex and custom shapes.

Mix:	-52

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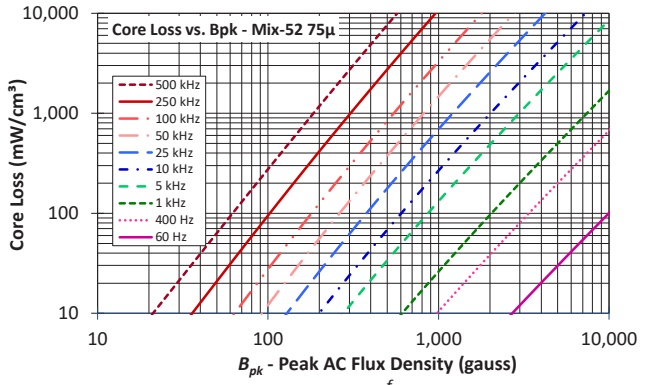
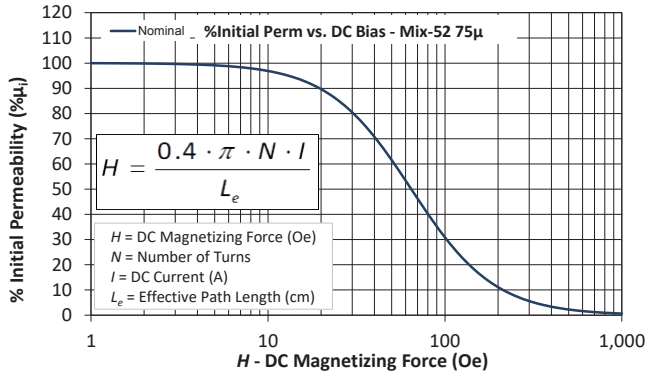
µi(reference)	75
Typical AL tolerance	± 10%
Color Code	Green/Blue
Density	7.0 g/cm³
Bsat	18.5kG
Core Loss (100kHz, 140g)	58 mW/cm³ (nom) 67 mW/cm³ (max)
%Perm at DC Bias (50 Oe)	61.6% (nom) 53.4% (min)



$$\text{Core Loss (mW/cm}^3) = \frac{f}{\frac{a}{B_{pk}{}^{3}} + \frac{b}{B_{pk}{}^{2.3}} + \frac{c}{B_{pk}{}^{1.65}}} + d \cdot B_{pk}{}^{2} \cdot f^{2}$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

a=1.00E+09, b=1.10E+08, c=2.10E+06, d=6.90E-14

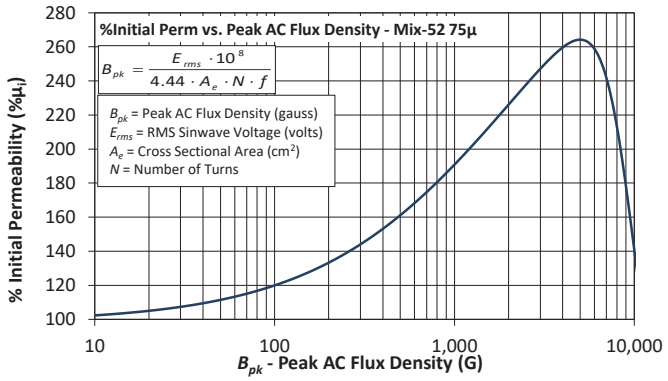


$$H = \frac{0.4 \cdot \pi \cdot N \cdot I}{L_e}$$

$$\%\mu_i = \frac{1}{a + b \cdot H^{c}} + d$$

where H expressed in oersteds, and:

a=1.00E-02, b=4.66E-06, c=1.84, d=0.00

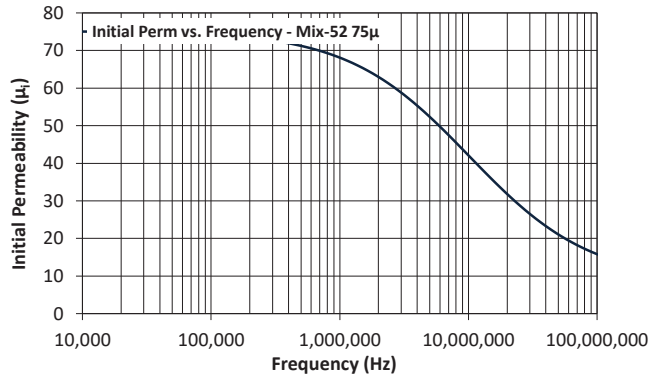


$$B_{pk} = \frac{E_{rms} \cdot 10^{8}}{4.44 \cdot A_e \cdot N \cdot f}$$

$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}{}^{c}} + \frac{1}{dB_{pk}{}^{e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

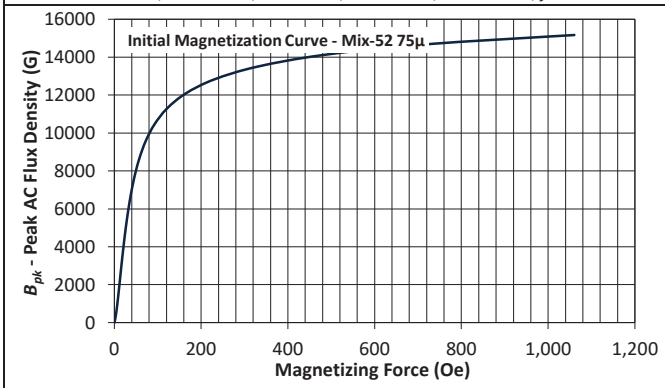
a=1.34E+02, b=1.20E+00, c=7.76E-01, d=4.30E+21, e=-4.80E+00, f=3.74E+02



$$\mu_i = \frac{1}{a + bf^{c}} + d$$

where f expressed in hertz, and:

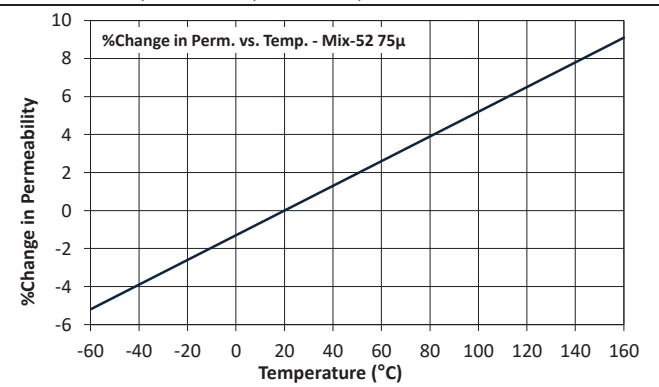
a=1.50E-02, b=5.37E-09, c=9.20E-01, d=8.58E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{b}} + \frac{1}{cH^{d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=1.98E-01, b=1.96E+00, c=6.12E+01, d=4.18E-01, e=2.47E+02



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

a=650

Mix:	-60

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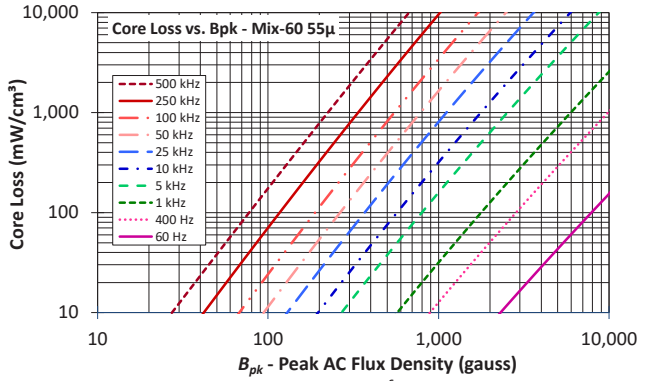
-60 Material has a permeability of 55 and can be considered a high-temperature substitute for the-18 material. It exhibits low core lossed with higher permeability at a lower cost and has good saturation characteristics.

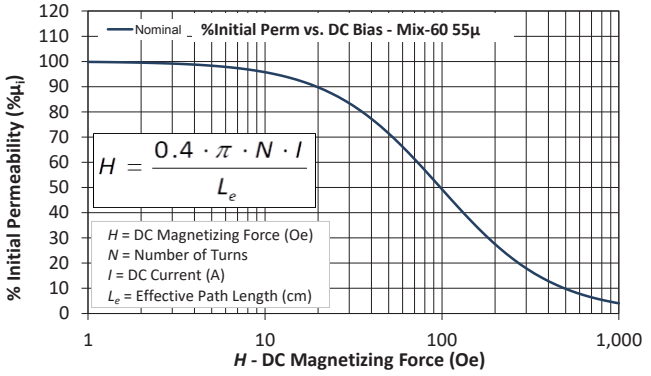
µi(reference)	55
Typical AL tolerance	± 10%
Color Code	Brown/Black
Density	6.1 g/cm³
Bsat	14.4kG
Core Loss (100kHz, 140g)	52 mW/cm³ (nom) 59 mW/cm³ (max)
%Perm at DC Bias (100 Oe)	49.3% (nom) 43.2% (min)



$$\text{Core Loss (mW/cm}^3) = \frac{f}{\frac{a}{B_{pk}{}^{3}} + \frac{b}{B_{pk}{}^{2.3}} + \frac{c}{B_{pk}{}^{1.65}}} + d \cdot B_{pk}{}^{2} \cdot f^{2}$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

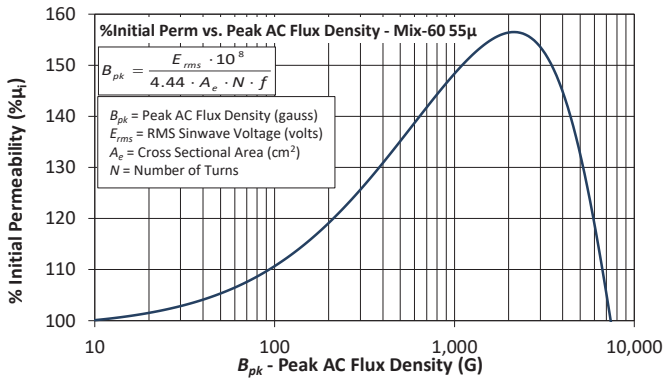
a=5.30E+08, b=1.40E+08, c=1.20E+06, d=2.70E-14



$$\%\mu_i = \frac{1}{a + b \cdot H^{c}} + d$$

where H expressed in oersteds, and:

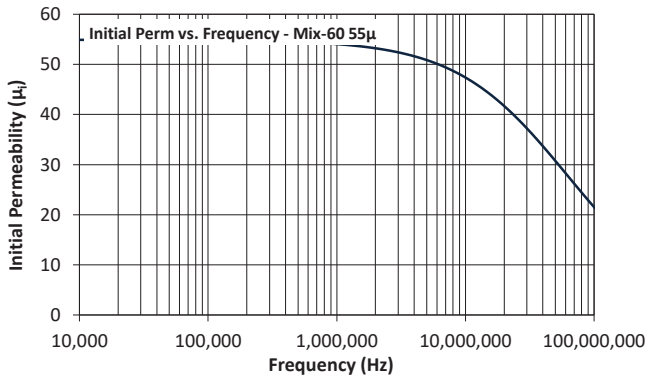
a=1.00E-02, b=1.94E-05, c=1.36, d=0.00



$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}{}^{c}} + \frac{1}{dB_{pk}{}^{e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

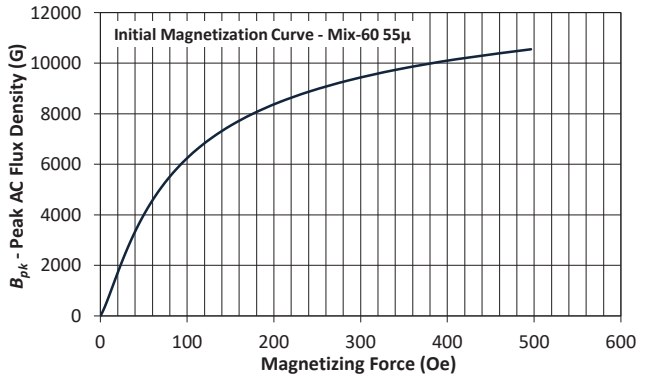
a=2.09E+02, b=8.71E-01, c=9.33E-01, d=1.44E+11, e=-2.27E+00, f=1.86E+02



$$\mu_i = \frac{1}{a + bf^{c}} + d$$

where f expressed in hertz, and:

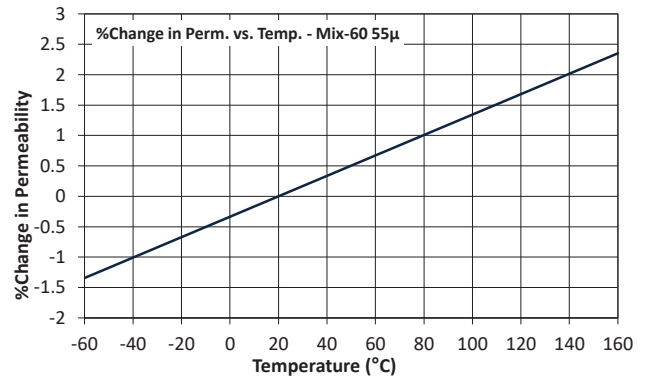
a=1.86E-02, b=2.96E-10, c=1.00E+00, d=1.00E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{b}} + \frac{1}{cH^{d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=1.57E-01, b=1.81E+00, c=1.41E+01, d=6.43E-01, e=2.61E+02



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

a=168

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-61 material has an initial permeability of 35. and has excellent high frequency properties allowing operation past 10MHz. It exhibits no thermal aging under 200°C.

Mix:	-61

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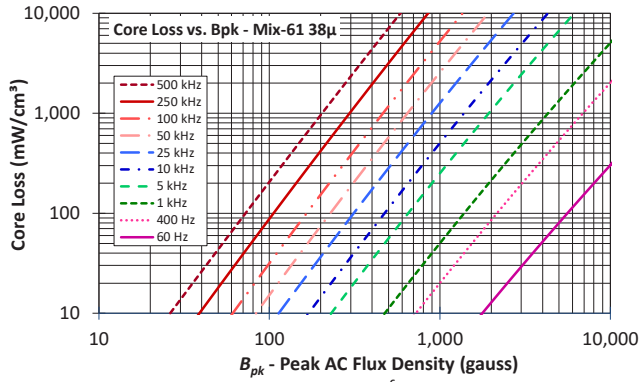
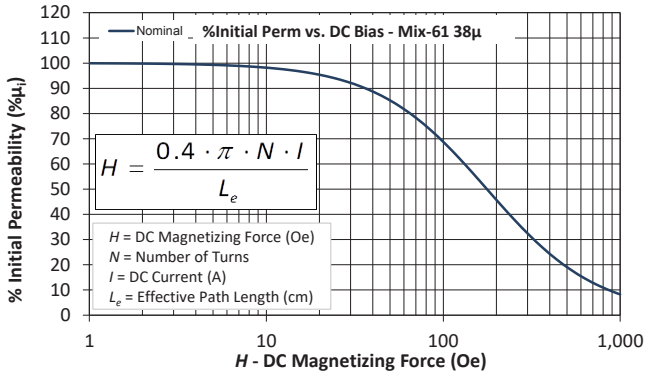
µi(reference)	38
Typical AL tolerance	± 10%
Color Code	Brown/Gray
Density	6.1 g/cm³
Bsat	14.4kG
Core Loss (100kHz, 140g)	69 mW/cm³ (nom) 79 mW/cm³ (max)
%Perm at DC Bias (100 Oe)	68.8% (nom) 63.1% (min)



$$\text{Core Loss (mW/cm}^3) = \frac{f}{\frac{a}{B_{pk}{}^{3}} + \frac{b}{B_{pk}{}^{2.3}} + \frac{c}{B_{pk}{}^{1.65}}} + d \cdot B_{pk}{}^{2} \cdot f^{2}$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

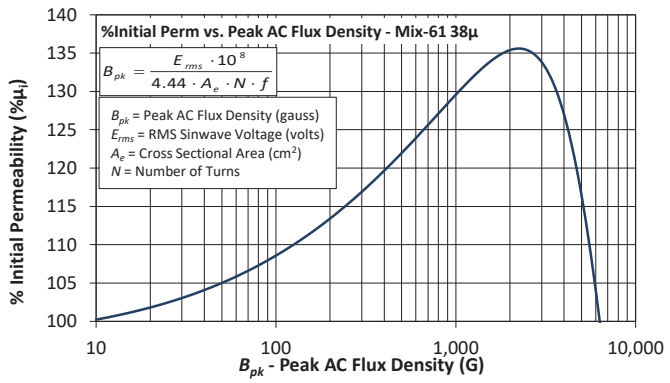
a=4.00E+08, b=1.10E+08, c=5.10E+05, d=2.40E-14



$$\%\mu_i = \frac{1}{a + b \cdot H^{c}} + d$$

where H expressed in oersteds, and:

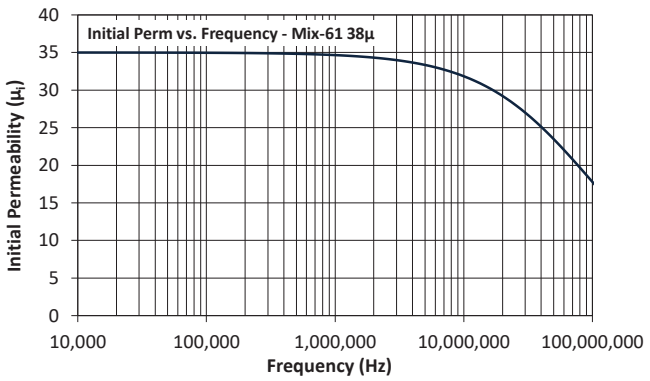
a=1.00E-02, b=7.60E-06, c=1.39, d=0.00



$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}{}^{c}} + \frac{1}{dB_{pk}{}^{e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

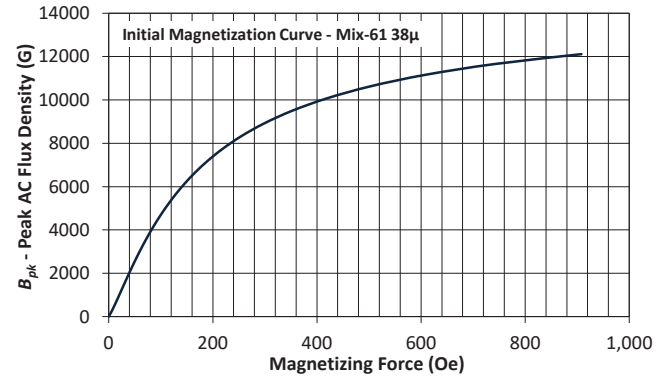
a=1.97E+02, b=3.67E+00, c=5.89E-01, d=5.72E+11, e=-2.45E+00, f=1.90E+02



$$\mu_i = \frac{1}{a + bf^{c}} + d$$

where f expressed in hertz, and:

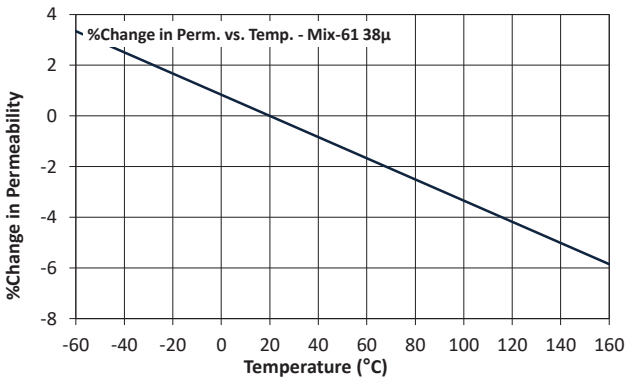
a=2.94E-02, b=2.96E-10, c=1.00E+00, d=1.00E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{b}} + \frac{1}{cH^{d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=8.80E-02, b=1.69E+00, c=2.24E+01, d=6.33E-01, e=4.11E+02



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

a=-418

Mix:	-63

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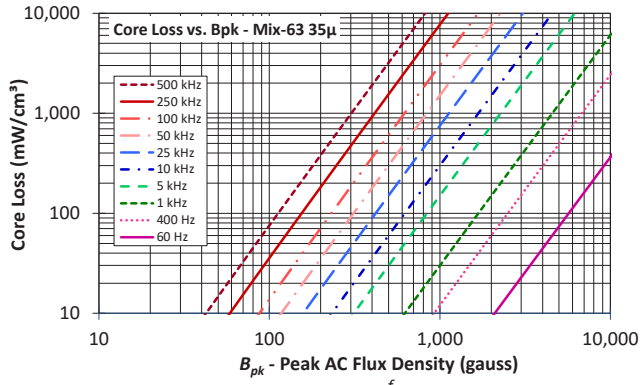
-63 material has an initial permeability of 35, excellent high frequency properties, and can be used in applications past 10MHz. It can be considered a high-temperature alternative to the-8 material. The-63 material experiences no thermal aging under 200°C.

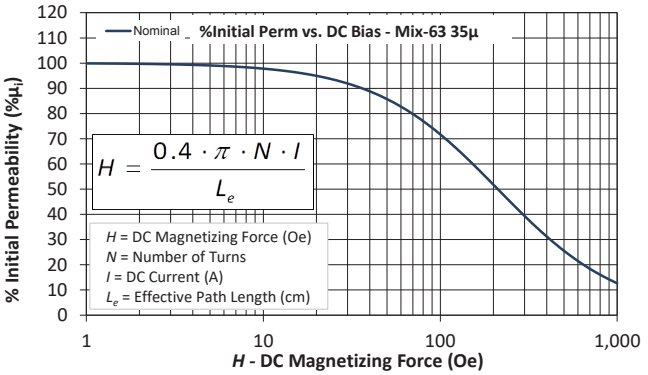
µi(reference)	35
Typical AL tolerance	± 10%
Color Code	Brown/Beige
Density	5.9 g/cm³
Bsat	14.1kG
Core Loss (100kHz, 140g)	31 mW/cm³ (nom) 35 mW/cm³ (max)
%Perm at DC Bias (200 Oe)	51.7% (nom) 46.1% (min)



$$\text{Core Loss (mW/cm}^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

a=9.94E+08, b=2.56E+08, c=1.00E+04, d=3.34E-15

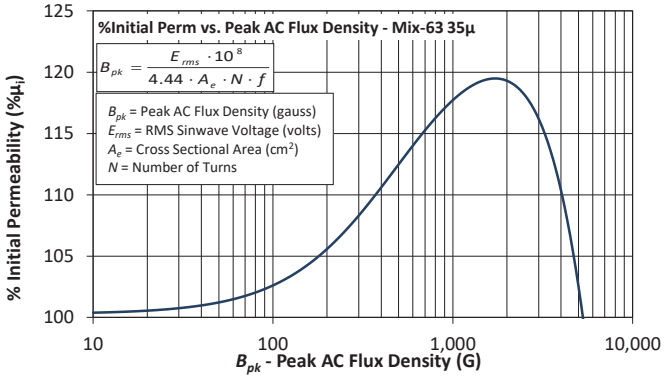


$$H = \frac{0.4 \cdot \pi \cdot N \cdot I}{L_e}$$

$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

a=1.00E-02, b=1.29E-05, c=1.24, d=0.00

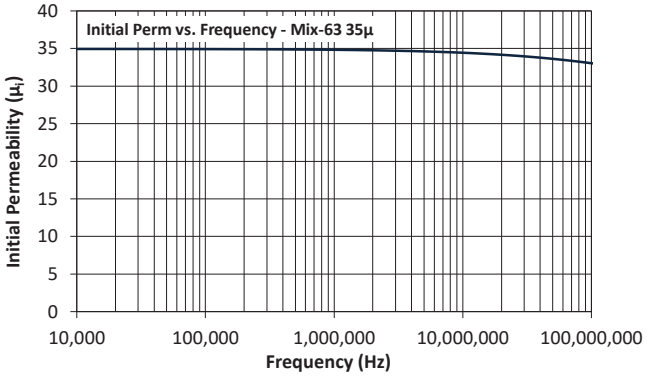


$$B_{pk} = \frac{E_{rms} \cdot 10^8}{4.44 \cdot A_e \cdot N \cdot f}$$

$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

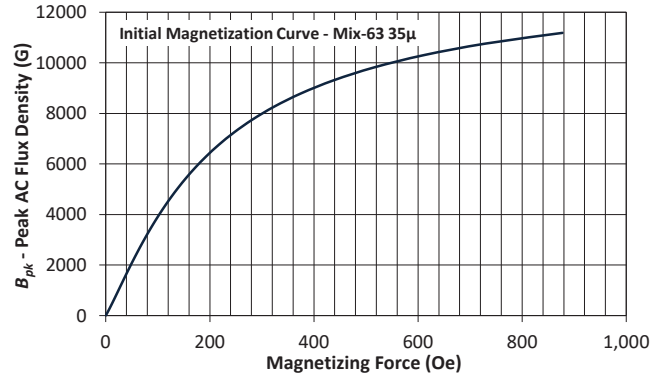
a=5.04E+02, b=1.06E-01, c=1.39E+00, d=5.71E+11, e=-2.43E+00, f=1.25E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

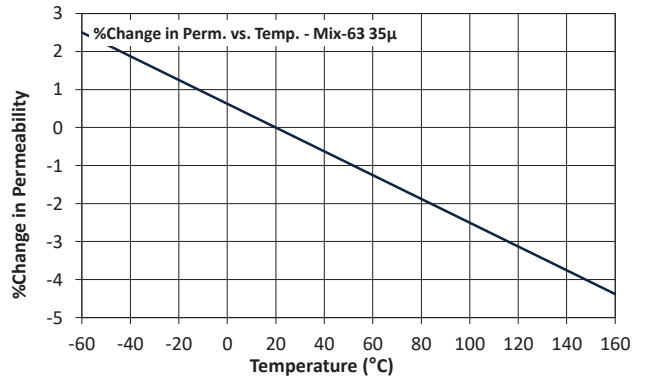
a=1.27E-01, b=1.98E-07, c=6.64E-01, d=2.70E+01



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=6.65E-02, b=1.65E+00, c=1.84E+01, d=7.04E-01, e=4.02E+02



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

a=-313

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Mix:	-65

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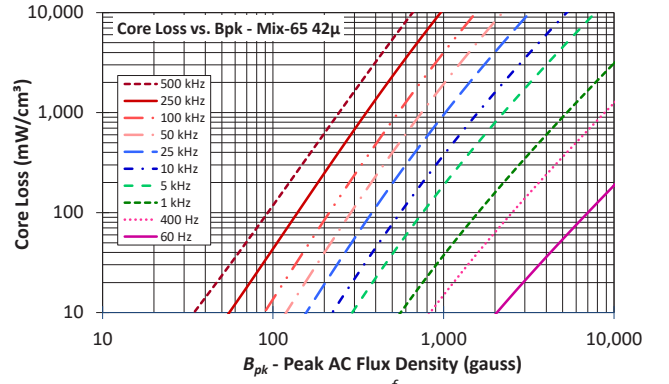
-65 material offers a permeability of 42 and is most popular in microcube geometries. It offers higher core losses at high frequencies compared to-66 material, but with better DC saturation. This material exhibits no thermal aging under 200°C.

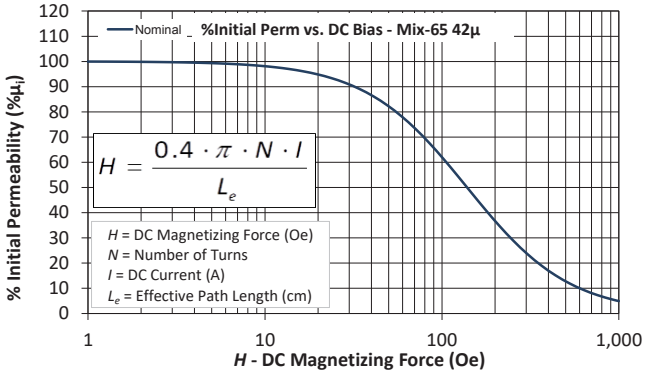
µi(reference)	42
Typical AL tolerance	± 10%
Color Code	Brown/Yellow
Density	6.1 g/cm³
Bsat	16.0kG
Core Loss (100kHz, 140g)	33 mW/cm³ (nom) 38 mW/cm³ (max)
%Perm at DC Bias (100 Oe)	62.1% (nom) 55.5% (min)



$$\text{Core Loss (mW/cm}^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

a=6.90E+09, b=6.00E+07, c=1.10E+06, d=2.50E-14

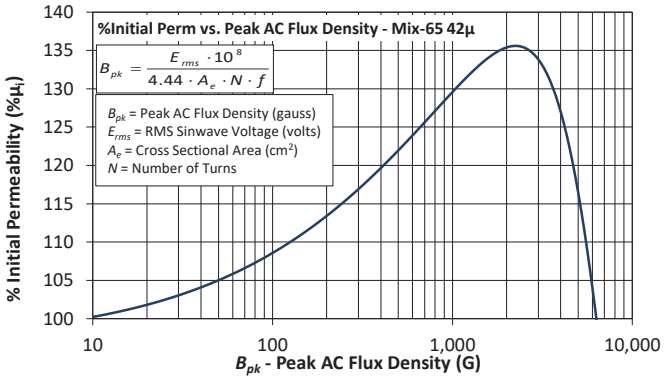


$$H = \frac{0.4 \cdot \pi \cdot N \cdot I}{L_e}$$

$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

a=1.00E-02, b=6.16E-06, c=1.50, d=0.00

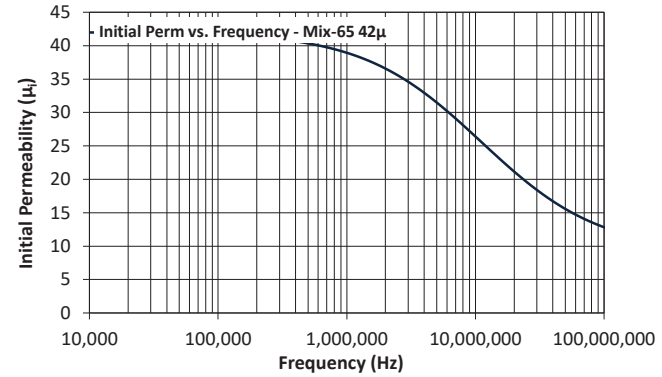


$$B_{pk} = \frac{E_{rms} \cdot 10^8}{4.44 \cdot A_e \cdot N \cdot f}$$

$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

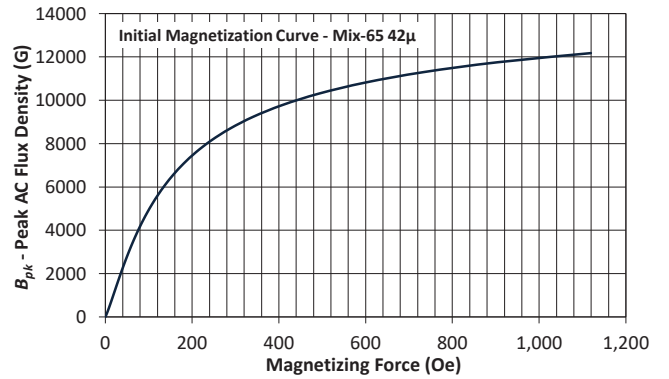
a=1.97E+02, b=3.67E+00, c=5.89E-01, d=5.72E+11, e=-2.45E+00, f=1.90E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

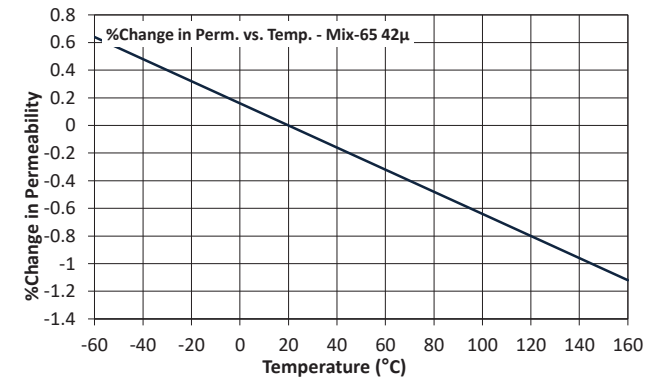
a=3.04E-02, b=7.09E-09, c=9.41E-01, d=9.13E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=9.23E-02, b=1.72E+00, c=2.39E+01, d=5.70E-01, e=3.80E+02



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

a=-80

-66 material offers low core losses and is well suited for power conversion applications below 150kHz and EMI filter applications below 30MHz. It experiences no thermal aging under 200°C.

Mix:	-66

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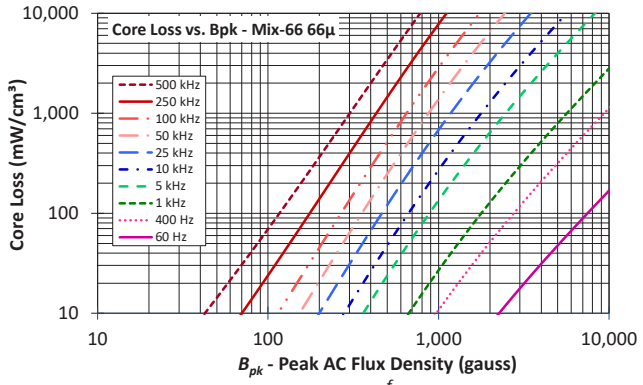
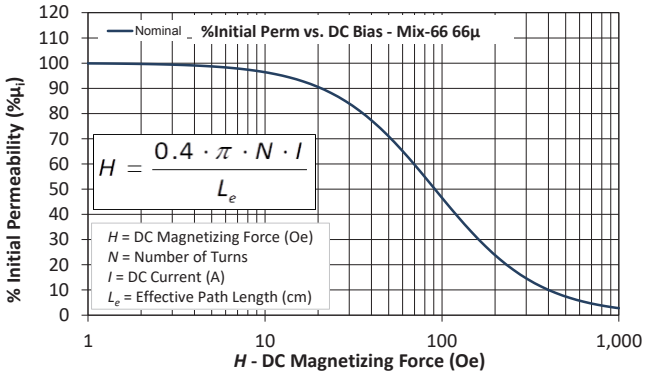
µi(reference)	66
Typical AL tolerance	± 10%
Color Code	Brown/Brown
Density	6.2 g/cm³
Bsat	16.2kG
Core Loss (100kHz, 140g)	17 mW/cm³ (nom) 20 mW/cm³ (max)
%Perm at DC Bias (50 Oe)	71.0% (nom) 65.1% (min)



$$\text{Core Loss (mW/cm}^3) = \frac{f}{\frac{a}{B_{pk}^{\ 3}} + \frac{b}{B_{pk}^{\ 2.3}} + \frac{c}{B_{pk}^{\ 1.65}}} + d \cdot B_{pk}^{\ 2} \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

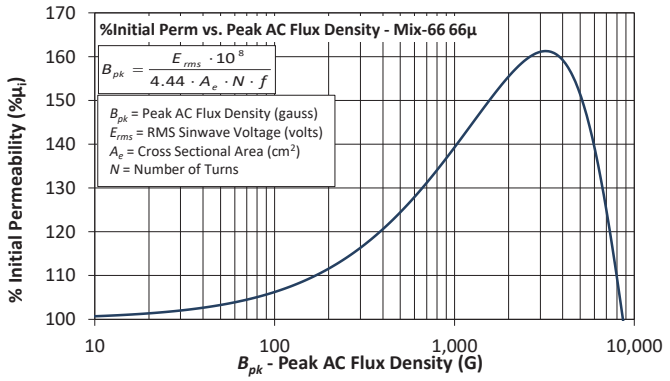
a=1.72E+10, b=4.96E+07, c=1.23E+06, d=1.73E-14



$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

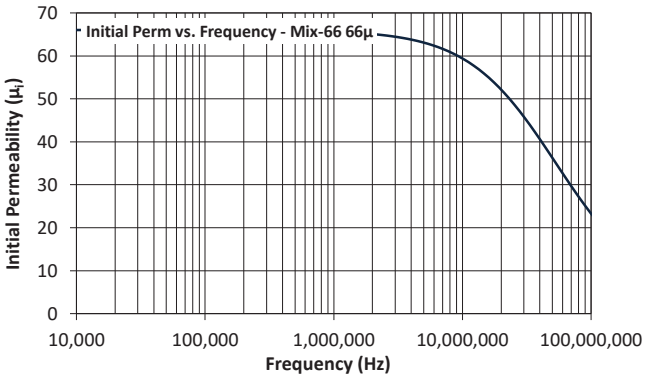
a=1.00E-02, b=1.23E-05, c=1.48, d=0.00



$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}^{\ c}} + \frac{1}{dB_{pk}^{\ e}} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

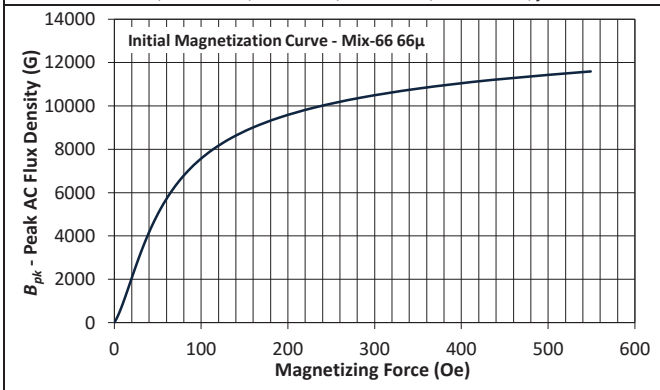
a=1.91E+02, b=2.79E-01, c=9.70E-01, d=1.54E+13, e=-2.76E+00, f=2.10E+02



$$\mu_i = \frac{1}{a + bf^{\ c}} + d$$

where f expressed in hertz, and:

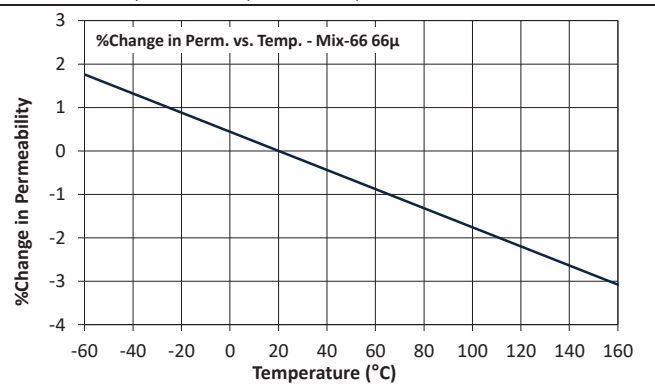
a=1.62E-02, b=2.46E-12, c=1.27E+00, d=4.20E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^{\ b}} + \frac{1}{cH^{\ d}} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=6.85E-02, b=2.00E+00, c=3.72E+01, d=4.51E-01, e=2.45E+02



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

a=-220

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Mix:	-70

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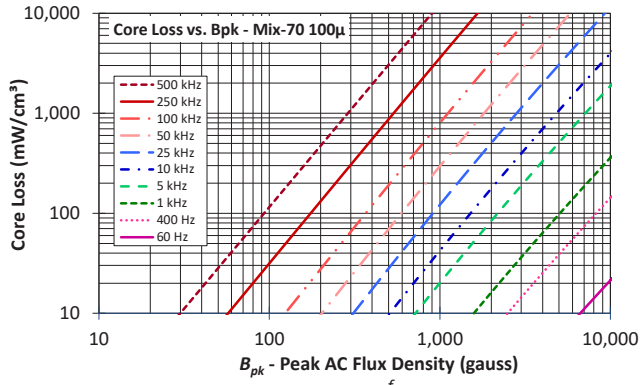
-70 material has higher permeability than the-60 Series with excellent losses up to 200kHz. Its high permeability makes it useful in high Q applications below 100kHz. -70 is also a popular choice for compact, low power flyback converters in isolated gate drivers or auxiliary power supplies. This is a relatively expensive material, most competitively priced in smaller sizes, and it shows no thermal aging.

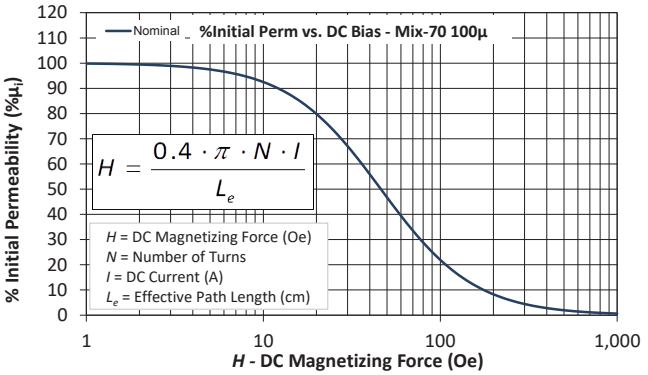
µi(reference)	100
Typical AL tolerance	± 10%
Color Code	Beige/Black
Density	7.4 g/cm³
Bsat	8.6kG
Core Loss (100kHz, 140g)	13 mW/cm³ (nom) 15 mW/cm³ (max)
%Perm at DC Bias (50 Oe)	46.8% (nom) 39.4% (min)



$$\text{Core Loss (mW/cm}^3) = \frac{f}{\frac{a}{B_{pk}{}^3} + \frac{b}{B_{pk}{}^{2.3}} + \frac{c}{B_{pk}{}^{1.65}}} + d \cdot B_{pk}{}^2 \cdot f^2$$

where B_{pk} expressed in gauss, f expressed in hertz, and:

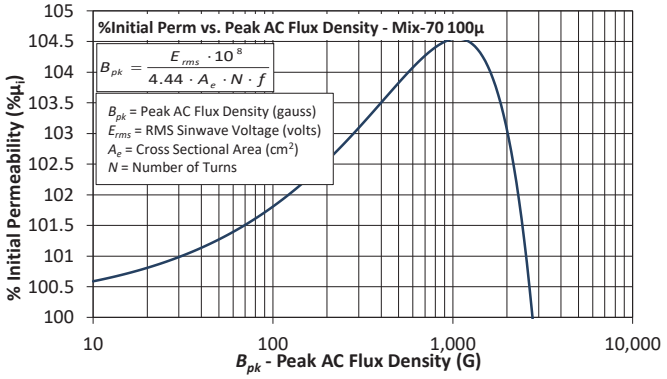
a=1.00E+10, b=1.30E+09, c=7.90E+06, d=4.20E-14



$$\%\mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersteds, and:

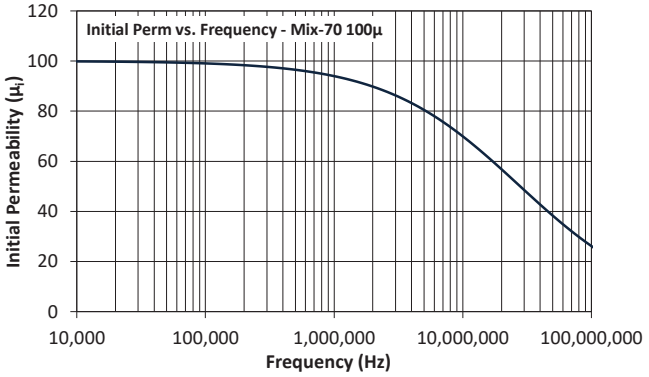
a=1.00E-02, b=1.85E-05, c=1.64, d=0.00



$$\%\mu_i = \frac{1}{\frac{1}{a + bB_{pk}{}^c} + \frac{1}{dB_{pk}{}^e} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

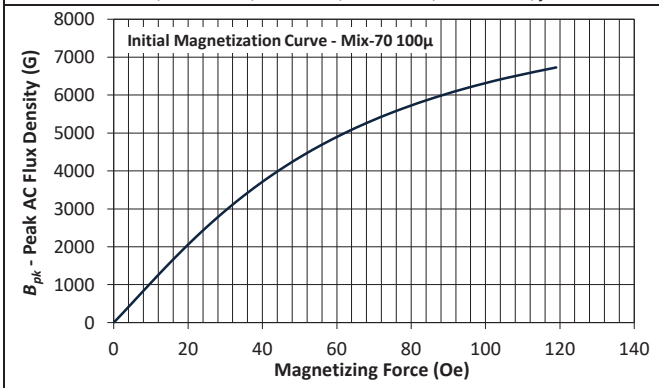
a=6.29E+02, b=4.10E+00, c=6.20E-01, d=1.76E+10, e=-2.07E+00, f=1.19E+02



$$\mu_i = \frac{1}{a + bf^c} + d$$

where f expressed in hertz, and:

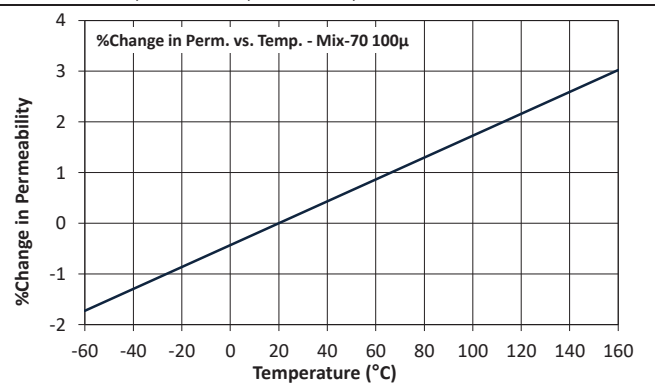
a=1.01E-02, b=7.01E-09, c=8.28E-01, d=1.00E+00



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^b} + \frac{1}{cH^d} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oested, and:

a=2.75E-02, b=1.85E+00, c=1.40E+09, d=2.27E-04, e=8.59E+01



$$\left(\frac{\Delta\mu_i}{\mu_i}\right) ppm = a(T - 20)$$

where T expressed in celsius, and:

a=216

Curve Fit Coefficients Table

Percent Perm vs. H

$$\%\mu = \frac{1}{a + bH^{c}} + d$$

=1/(a+b*H^2)+d
H expressed in Oe
%Perm vs. DC Sat. Coef.

Core Loss vs. Bpk and Frequency

$$CL(mW/cm^{3}) = \frac{f}{\frac{a}{B^{3}} + \frac{b}{B^{2.3}} + \frac{c}{B^{1.65}}} + d \cdot B^{2} \cdot f^{2}$$

=f/(a/B^3+b/B^2.3+c/B^1.65)+d*B^2*f^2
B expressed in G, f expressed in Hz
Core Loss Coefficients

Material	Init. Perm. (μ)	a	b	c	d	a	b	c	d
1	20	1.00E-02	1.14E-06	1.43E+00	0.00E+00	1.90E+09	2.00E+08	9.00E+05	4.30E-15
2	10	1.00E-02	1.83E-07	1.46E+00	0.00E+00	4.00E+09	3.00E+08	2.70E+06	9.60E-16
3	35	1.00E-02	3.49E-06	1.43E+00	0.00E+00	1.90E+09	2.00E+08	9.00E+05	4.30E-15
6	8.5	1.00E-02	4.87E-08	1.57E+00	0.00E+00	4.00E+09	3.00E+08	2.70E+06	8.90E-16
7	9	1.00E-02	1.48E-07	1.46E+00	0.00E+00	4.00E+09	3.00E+08	2.70E+06	9.60E-16
8	35	1.00E-02	3.49E-06	1.43E+00	0.00E+00	1.90E+09	2.00E+08	9.00E+05	5.00E-15
10	6	1.00E-02	5.54E-09	1.69E+00	0.00E+00	4.00E+09	3.00E+08	2.70E+06	8.00E-16
14	14	1.00E-02	3.90E-07	1.46E+00	0.00E+00	4.00E+09	3.00E+08	2.70E+06	1.92E-15
15	25	1.00E-02	1.78E-06	1.43E+00	0.00E+00	1.90E+09	2.00E+08	9.00E+05	5.00E-15
17	4	1.00E-02	1.34E-08	1.55E+00	0.00E+00	4.00E+09	3.00E+08	2.70E+06	4.40E-16
18	55	1.00E-02	4.72E-06	1.65E+00	0.00E+00	8.00E+08	1.70E+08	9.00E+05	3.10E-14
19	55	1.00E-02	3.60E-06	1.69E+00	0.00E+00	1.90E+09	8.40E+07	2.10E+06	5.00E-14
26	75	1.00E-02	9.70E-06	1.72E+00	0.00E+00	1.00E+09	1.10E+08	1.90E+06	1.90E-13
30	22	1.00E-02	4.10E-06	1.34E+00	0.00E+00	3.30E+08	2.00E+07	2.00E+06	1.10E-13
34	33	1.00E-02	3.00E-06	1.54E+00	0.00E+00	1.10E+09	3.30E+07	2.50E+06	7.70E-14
35	33	1.00E-02	6.22E-06	1.38E+00	0.00E+00	3.70E+08	2.20E+07	2.20E+06	1.10E-13
38	85	1.00E-02	9.78E-06	1.76E+00	0.00E+00	1.20E+09	1.30E+08	1.90E+06	3.20E-13
40	60	1.00E-02	8.93E-06	1.61E+00	0.00E+00	1.10E+09	3.30E+07	2.50E+06	3.10E-13
45	100	1.00E-02	2.44E-05	1.61E+00	0.00E+00	1.20E+09	1.30E+08	2.40E+06	1.20E-13
52	75	1.00E-02	4.66E-06	1.84E+00	0.00E+00	1.00E+09	1.10E+08	2.10E+06	6.90E-14
60	55	1.00E-02	1.94E-05	1.36E+00	0.00E+00	5.30E+08	1.40E+08	1.20E+06	2.70E-14
61	38	1.00E-02	7.60E-06	1.39E+00	0.00E+00	4.00E+08	1.10E+08	5.10E+05	2.40E-14
63	35	1.00E-02	1.29E-05	1.24E+00	0.00E+00	9.94E+08	2.56E+08	1.00E+04	3.34E-15
65	42	1.00E-02	6.16E-06	1.50E+00	0.00E+00	6.90E+09	6.00E+07	1.10E+06	2.50E-14
66	66	1.00E-02	1.23E-05	1.48E+00	0.00E+00	1.72E+10	4.96E+07	1.23E+06	1.73E-14
70	100	1.00E-02	1.85E-05	1.64E+00	0.00E+00	1.00E+10	1.30E+09	7.90E+06	4.20E-14

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Curve Fit Coefficients Table

Percent Perm vs. Bpk

$$\%\mu_i = \frac{1}{\frac{1}{a + bB^c} + \frac{1}{dB^e} + \frac{1}{f}}$$

=1/(1/(a+b*B^c)+1/(d*B^e)+1/f)
B expressed in G
%Perm. vs. AC Flux Density Coefficients

Permeability vs. Frequency

$$\mu = \frac{1}{a + bf^c} + d$$

=1/(a+b*f^c)+d
f expressed in Hz
Perm vs. Frequency Coefficients

Material	Init. Perm. (μ)	a	b	c	d	e	f	a	b	c	d
1	20	3.50E+02	3.78E-01	1.03E+00	1.76E+10	-1.98E+00	1.40E+02	2.19E-01	1.98E-07	6.64E-01	1.54E+01
2	10	1.57E+03	4.50E-01	1.25E+00	1.16E+17	-3.70E+00	1.07E+02	1.11E-01	7.01E-11	9.00E-01	1.00E+00
3	35	3.50E+02	3.78E-01	1.03E+00	1.76E+10	-1.98E+00	1.40E+02	1.27E-01	1.98E-07	6.64E-01	2.70E+01
6	8.5	1.57E+03	4.50E-01	1.25E+00	1.16E+17	-3.70E+00	1.07E+02	1.33E-01	7.01E-11	9.00E-01	1.00E+00
7	9	1.57E+03	4.50E-01	1.25E+00	1.16E+17	-3.70E+00	1.07E+02	1.25E-01	7.01E-11	9.00E-01	1.00E+00
8	35	3.50E+02	3.78E-01	1.03E+00	1.76E+10	-1.98E+00	1.40E+02	1.27E-01	1.98E-07	6.64E-01	2.70E+01
10	6	1.57E+03	4.50E-01	1.25E+00	1.16E+17	-3.70E+00	1.07E+02	2.00E-01	7.01E-11	9.00E-01	1.00E+00
14	14	1.57E+03	4.50E-01	1.25E+00	1.16E+17	-3.70E+00	1.07E+02	8.67E-02	1.45E-15	1.52E+00	2.47E+00
15	25	3.499E+02	3.780E-01	1.029E+00	1.764E+10	-1.976E+00	1.398E+02	1.750E-01	1.980E-07	6.640E-01	1.929E+01
17	4	1.57E+03	4.50E-01	1.25E+00	1.16E+17	-3.70E+00	1.07E+02	3.33E-01	7.01E-11	9.00E-01	1.00E+00
18	55	1.84E+02	2.45E-01	9.67E-01	3.53E+10	-2.06E+00	2.21E+02	1.82E-02	1.70E-11	1.11E+00	0.00E+00
19	55	1.84E+02	2.45E-01	9.67E-01	3.53E+10	-2.06E+00	2.21E+02	1.82E-02	4.50E-11	1.11E+00	0.00E+00
26	75	1.32E+02	5.71E-01	8.96E-01	1.45E+23	-5.12E+00	4.14E+02	1.46E-02	4.13E-08	8.47E-01	7.15E+00
30	22	3.41E+02	1.31E+00	1.04E+00	6.06E+08	-1.63E+00	1.41E+02	6.63E-02	4.20E-09	9.55E-01	6.93E+00
34	33	2.53E+02	1.55E+00	9.06E-01	1.08E+12	-2.44E+00	1.65E+02	4.72E-02	2.39E-09	9.84E-01	1.18E+01
35	33	2.53E+02	1.55E+00	9.06E-01	1.08E+12	-2.44E+00	1.65E+02	4.18E-02	7.09E-09	9.41E-01	9.13E+00
38	85	1.17E+02	1.86E+00	6.54E-01	4.70E+14	-2.96E+00	5.78E+02	1.28E-02	1.04E-07	7.71E-01	7.71E+00
40	60	1.32E+02	7.79E-01	8.57E-01	6.95E+14	-3.02E+00	3.93E+02	1.86E-02	5.98E-08	8.23E-01	6.64E+00
45	100	1.13E+02	2.16E+00	6.62E-01	5.49E+15	-3.22E+00	6.24E+02	1.09E-02	6.49E-09	8.90E-01	8.43E+00
52	75	1.34E+02	1.20E+00	7.76E-01	4.30E+21	-4.80E+00	3.74E+02	1.50E-02	5.37E-09	9.20E-01	8.58E+00
60	55	2.09E+02	8.71E-01	9.33E-01	1.44E+11	-2.27E+00	1.86E+02	1.86E-02	2.96E-10	1.00E+00	1.00E+00
61	38	1.97E+02	3.67E+00	5.89E-01	5.72E+11	-2.45E+00	1.90E+02	2.94E-02	2.96E-10	1.00E+00	1.00E+00
63	35	5.04E+02	1.06E-01	1.39E+00	5.71E+11	-2.43E+00	1.25E+02	1.27E-01	1.98E-07	6.64E-01	2.70E+01
65	42	1.97E+02	3.67E+00	5.89E-01	5.72E+11	-2.45E+00	1.90E+02	3.04E-02	7.09E-09	9.41E-01	9.13E+00
66	66	1.91E+02	2.79E-01	9.70E-01	1.54E+13	-2.76E+00	2.10E+02	1.62E-02	2.46E-12	1.27E+00	4.20E+00
70	100	6.29E+02	4.10E+00	6.20E-01	1.76E+10	-2.07E+00	1.19E+02	1.01E-02	7.01E-09	8.28E-01	1.00E+00

Curve Fit Coefficients Table

Initial BH Curve

$$B = \frac{\mu}{\frac{1}{H + a \cdot H^{b}} + \frac{1}{c \cdot H^{d}} + \frac{1}{e}}$$

=μ/(1/(H+a*H^b)+1/(c*H^d)+1/e)
B, Bsat expressed in G, H expressed in Oe
B vs H Coefficients

Perm vs. Temperature

$$\% \left(\frac{\Delta \mu}{\mu_i} \right) = a(T-20)*.0001$$

T expressed in Celsius

Material	Init. Perm. (μ)	a	b	c	d	e	Density (g/cm³)	a
1	20	3.23E-02	1.70E+00	3.60E+01	6.40E-01	8.65E+02	6.30	280
2	10	1.50E-03	1.96E+00	1.97E+04	9.18E-04	1.48E+03	5.00	95
3	35	4.11E-02	1.75E+00	3.64E+01	5.64E-01	5.04E+02	6.50	255
6	8.5	1.28E-03	1.96E+00	2.30E+04	9.19E-04	1.69E+03	4.80	35
7	9	1.35E-03	1.96E+00	3.83E+04	9.23E-04	2.30E+03	4.90	30
8	35	4.36E-02	1.74E+00	3.26E+01	5.86E-01	5.04E+02	6.50	255
10	6	9.13E-04	1.96E+00	3.83E+04	9.23E-04	2.43E+03	4.50	150
14	14	2.90E-03	1.91E+00	5.26E+02	4.97E-01	1.09E+03	5.20	150
15	25	3.18E-02	1.75E+00	4.23E+01	5.67E-01	6.98E+02	6.40	190
17	4	4.51E-04	2.03E+00	9.96E+08	1.58E-01	3.20E+03	4.00	50
18	55	6.81E-02	1.92E+00	3.25E+01	5.27E-01	3.24E+02	6.60	385
19	55	7.24E-02	1.92E+00	2.81E+01	5.51E-01	3.30E+02	6.80	650
26	75	1.66E-01	2.09E+00	2.35E+02	1.20E-01	2.47E+02	7.00	825
30	22	1.87E-01	1.52E+00	7.61E+00	8.05E-01	7.60E+02	6.00	510
34	33	1.85E-01	1.59E+00	9.52E+00	7.99E-01	5.18E+02	6.20	565
35	33	1.81E-01	1.60E+00	9.75E+00	7.91E-01	5.23E+02	6.30	665
38	85	2.18E-01	2.00E+00	3.41E+01	6.46E-01	2.20E+02	7.10	956
40	60	1.88E-01	1.98E+00	3.20E+01	6.65E-01	3.06E+02	6.90	950
45	100	3.06E-01	2.06E+00	3.92E+01	5.95E-01	1.89E+02	7.20	1043
52	75	1.67E-01	2.02E+00	1.09E+02	2.55E-01	2.47E+02	7.00	650
60	55	1.57E-01	1.81E+00	1.41E+01	6.43E-01	2.61E+02	6.10	168
61	38	8.80E-02	1.69E+00	2.24E+01	6.33E-01	4.11E+02	6.10	-418
63	35	6.65E-02	1.65E+00	1.84E+01	7.04E-01	4.02E+02	5.90	-313
65	42	9.23E-02	1.72E+00	2.39E+01	5.70E-01	3.80E+02	6.10	-80
66	66	6.85E-02	2.00E+00	3.72E+01	4.51E-01	2.45E+02	6.20	-220
70	100	2.75E-02	1.85E+00	1.40E+09	2.27E-04	8.59E+01	7.40	216

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Tolerances

MAGNETIC TOLERANCE

Mix No.	-1	-2	-3	-6	-7	-8	-10	-14	-15	-17	-18	-19	-26	-30	-34	-35	-38	-40	-45	-52	-60	-61	-63	-65	-66	-70
Typ. AL Tol	±10	±5	±10	±5	±5	±10	±5	±10	±10	±5	±10	±10	±10	±10	±10	±10	±10	±10	±10	±10	±10	±10	±10	±10	±10	±10

The cores are manufactured to the A_L Values listed; the permeability for each material is for reference only. In all cases, **the A_L values are based on a peak AC flux density of 10 gauss (1 mT) at a frequency of 10 kHz.** Measurements made under other conditions will produce results in accordance with the magnetic curves shown on the material performance data pages.

The toroidal cores are tested with an evenly-spaced full single-layer winding in order to minimize leakage effects. Iron powder cores tested with a small number of turns which are not evenly distributed will produce higher inductance readings than expected. The E Cores are tested with 100 turns.

The %Initial Permeability vs DC Magnetizing Force curves shown on the magnetic performance data pages have a typical tolerance of +20%,-10%. The curves on Core Loss characteristics have a typical tolerance of ±15%.

DIMENSIONAL TOLERANCE

TOROIDS	OD	ID	HT	TOROIDS	OD	ID	HT
T5 - 12	±0.005	±0.005	±0.005	T80 - T141**	±0.020	±0.020	±0.025
T14 - 20	±0.010	±0.010	±0.010	T150 - T225	±0.025	±0.025	±0.030
T22 - T38	±0.015	±0.015	±0.020	T249 - T400**	±0.030	±0.030	±0.030
T40 - T72**	±0.020	±0.020	±0.020	T520 - T650**	±0.050	±0.050	±0.050

**T50-8/90,T50-8B/90,T50-8C/90, T50-26C: OD is +0.025/-0.015. / T80-70, T80-70B: OD is ±0.030. / T400-2, T400-2D: OD/ID/HT is ±0.050. / T650-2, T650-14: OD/ID/HT is ±0.080.

E-CORES	A	B	C	D	E	F	Max Gap
E49 - E118	±0.010	±0.005	±0.005	±0.004	±0.007	±0.005	0.0015
E137 - E162	±0.015	±0.008	±0.007	±0.005	±0.010	±0.007	0.0015
E168 - E225	±0.015	±0.008	±0.010	±0.005	±0.010	±0.007	0.002
E305 - E315B	±0.030	±0.015	±0.015	±0.010	±0.020	±0.015	0.003
E450 - E450	±0.030	±0.015	±0.015	±0.010	±0.020	±0.020	0.003
E610 E610**	±0.040	±0.020	±0.025	±0.015	±0.025	±0.025	0.005
E827 E827	±0.050	±0.025	±0.035	±0.020	±0.035	±0.035	0.015

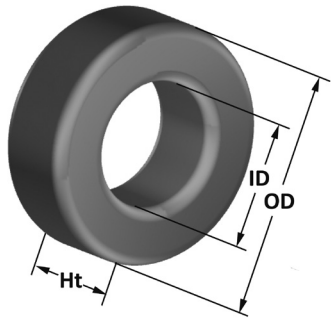
** Max Gap for E610-2 is 0.010.

BUS BAR(HS)	A	B	C	D	E
HS135 - HS135	±0.015	±0.008	±0.020	±0.005	±0.005
HS300 - HS670/10	±0.015	±0.010	±0.020	±0.005	±0.003
HS465 - HS465	±0.015	±0.015	±0.020	±0.015	±0.005

BALUN (BLN) CORES	A	B	L	ID	D
BLN814-BLN1728	±0.005	±0.005	±0.007	±0.005	±0.005

PLAIN CORES	D	L
P22	+0.000/-0.003	±0.005
P23 - P33	+0.000/-0.003	±0.010
P48 - P810	+0.000/-0.005	±0.010
PXX16 - PXX40	+0.000/-0.005	±0.015
PXX48 - PXX76	+0.000/-0.005	±0.020

Toroid



Typical Part Number: T 106 - 26 B /

- Toroidal Geometry
- OD in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate Height
- Code Area For Other Characteristics

Part Number	Physical Dimensions			Magnetic Dimensions			AL	Ref. Perm.	Material
	OD (in/mm)	ID (in/mm)	HT (in/mm)	Ae (cm^2)	le (cm)	Ve (cm^3)	(nH/N^2)		
T5-0	0.050 / 1.27	0.025 / 0.64	0.025 / 0.64	0.0019	0.300	0.000600	0.16	1	-0
T5-6							1	8.5	-6
T5-10							0.7	6	-10
T5-17							0.42	4	-17
T7-0	0.070 / 1.78	0.035 / 0.89	0.030 / 0.76	0.0035	0.420	0.00150	0.3	1	-0
T7-2							1.35	10	-2
T7-6							1.3	8.5	-6
T7-10							0.9	6	-10
T7-17							0.6	4	-17
T10-0	0.097 / 2.46	0.044 / 1.12	0.030 / 0.76	0.0045	0.560	0.00250	0.24	1	-0
T10-2							1.35	10	-2
T10-6							1.15	8.5	-6
T10-10							0.8	6	-10
T10-17							0.5	4	-17
T10-2B	0.097 / 2.46	0.044 / 1.12	0.050 / 1.27	0.0075	0.560	0.00420	1.8	10	-2
T10-10B							1.25	6	-10
T12-0	0.125 / 3.18	0.062 / 1.57	0.050 / 1.27	0.01	0.750	0.00770	0.24	1	-0
T12-2							2	10	-2
T12-6							1.7	8.5	-6
T12-10							1.2	6	-10
T12-17							0.75	4	-17
T12-26							13	75	-26
T12-45							16	100	-45
T12-6A	0.125 / 3.18	0.062 / 1.57	0.030 / 0.76	0.0057	0.750	0.00430	1.02	8.5	-6
T12-10A							0.72	6	-10
T12-2B	0.125 / 3.18	0.062 / 1.57	0.042 / 1.07	0.008	0.750	0.00610	1.62	10	-2
T12-6B							1.35	8.5	-6
T12-10B							1	6	-10
T14-6	0.135 / 3.43	0.067 / 1.70	0.042 / 1.07	0.0084	0.810	0.00680	1.26	8.5	-6
T14-45A	0.135 / 3.43	0.067 / 1.70	0.060 / 1.52	0.012	0.810	0.00980	16.5	100	-45
T14-52A							11.5	75	-52
T16-0	0.160 / 4.06	0.078 / 1.98	0.060 / 1.52	0.015	0.930	0.0141	0.3	1	-0
T16-2							2.2	10	-2
T16-3							6.1	35	-3
T16-6							1.9	8.5	-6
T16-10							1.3	6	-10
T16-15							5.5	25	-15

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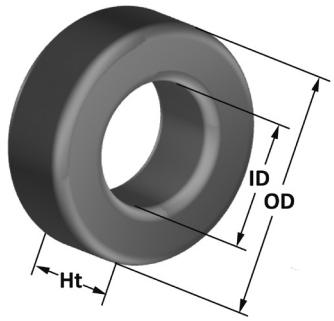
Toroid
(continued)

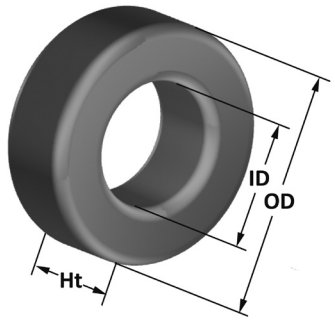


Typical Part Number: T 106 - 26 B /

- Toroidal Geometry
- OD in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate Height
- Code Area For Other Characteristics

Part Number	Physical Dimensions			Magnetic Dimensions			AL (nH/N²)	Ref. Perm.	Material
	OD (in/mm)	ID (in/mm)	HT (in/mm)	Ae (cm²)	le (cm)	Ve (cm³)			
T16-17	0.160 / 4.06	0.078 / 1.98	0.060 / 1.52	0.015	0.930	0.0141	0.8	4	-17
T16-18							9.5	55	-18
T16-26							14.5	75	-26
T16-45							17	100	-45
T16-52							13.5	75	-52
T16-60							9.5	55	-60
T18-6	0.185 / 4.70	0.102 / 2.59	0.040 / 1.02	0.01	1.14	0.0114	0.9	8.5	-6
T20-0	0.200 / 5.08	0.088 / 2.24	0.070 / 1.78	0.023	1.15	0.0260	0.35	1	-0
T20-2							2.5	10	-2
T20-6							2.2	8.5	-6
T20-8/90							7.8	35	-8
T20-10							1.6	6	-10
T20-15							6.5	25	-15
T20-17							1	4	-17
T20-18							13	55	-18
T20-26							18.5	75	-26
T20-40							16	60	-40
T20-52							17.5	75	-52
T20-66							15.5	66	-66
T20-63							7.8	35	-63
T20-70							22.5	100	-70
T20-52E	0.200 / 5.08	0.088 / 2.24	0.210 / 5.33	0.069	1.15	0.0780	52.4	75	-52
T22-0	0.223 / 5.66	0.097 / 2.46	0.143 / 3.63	0.052	1.28	0.0670	0.71	1	-0
T22-6							4.5	8.5	-6
T22-10							3.2	6	-10
T22-17							2	4	-17
T22-26							38.5	75	-26
T22-52							38.5	75	-52
T22-0A	0.223 / 5.66	0.097 / 2.46	0.096 / 2.44	0.037	1.28	0.0470	0.51	1	-0
T22-10A							2.2	6	-10
T22-17A							2.2	6	-10
T25-0	0.255 / 6.48	0.120 / 3.05	0.096 / 2.44	0.037	1.50	0.0550	0.45	1	-0
T25-2							3.4	10	-2
T25-3							10	35	-3
T25-6							2.7	8.5	-6
T25-10							1.9	6	-10
T25-15							8.5	25	-15
T25-17							1.2	4	-17
T25-18							17	55	-18
T25-26							24.5	75	-26
T25-45							31	100	-45

Toroid
(continued)



Typical Part Number: T 106 - 26 B /

- Toroidal Geometry
- OD in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate Height
- Code Area For Other Characteristics

Part Number	Physical Dimensions			Magnetic Dimensions			AL (nH/N²)	Ref. Perm.	Material
	OD (in/mm)	ID (in/mm)	HT (in/mm)	Ae (cm^2)	le (cm)	Ve (cm^3)			
T25-52	0.255 / 6.48	0.120 / 3.05	0.096 / 2.44	0.037	1.50	0.0550	23	75	-52
T25-63							10	35	-63
T25-66							20	66	-66
T25-6A	0.255 / 6.48	0.120 / 3.05	0.065 / 1.65	0.027	1.50	0.0400	1.8	8.5	-6
T25-52A							14.9	75	-52
T26-8/90	0.265 / 6.73	0.105 / 2.67	0.190 / 4.83	0.09	1.47	0.133	24	35	-8
T26-18							41.5	55	-18
T26-26							57	75	-26
T26-45							77	100	-45
T26-52							56	75	-52
T27-0	0.280 / 7.11	0.151 / 3.84	0.128 / 3.25	0.047	1.71	0.0800	0.45	1	-0
T27-2							3.3	10	-2
T27-6							2.7	8.5	-6
T27-8/90							11.5	35	-8
T27-10							2.2	6	-10
T27-17							1.3	4	-17
T27-18							18.5	55	-18
T27-52							25.5	75	-52
T27-26							27.5	75	-26
T30-52A	0.307 / 7.80	0.151 / 3.84	0.070 / 1.78	0.033	1.83	0.0610	16.5	75	-52
T30-6B	0.307 / 7.80	0.151 / 3.84	0.080 / 2.03	0.038	1.83	0.0700	2.3	8.5	-6
T30-0	0.307 / 7.80	0.151 / 3.84	0.128 / 3.25	0.06	1.84	0.110	0.6	1	-0
T30-2							4.3	10	-2
T30-6							3.6	8.5	-6
T30-7							3.7	9	-7
T30-8/90							14	35	-8
T30-10							2.5	6	-10
T30-17							1.6	4	-17
T30-26							33.5	75	-26
T30-18							22	55	-18
T30-52							30.5	75	-52
T30-63							14	35	-63
T30-66							26.5	66	-66
T32-52	0.327 / 8.31	0.169 / 4.29	0.158 / 4.01	0.073	1.96	0.144	35	75	-52
T37-0	0.375 / 9.53	0.205 / 5.21	0.128 / 3.25	0.064	2.31	0.147	0.49	1	-0
T37-1							8	20	-1
T37-2							4	10	-2
T37-3							12	35	-3
T37-6							3	8.5	-6

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Toroid
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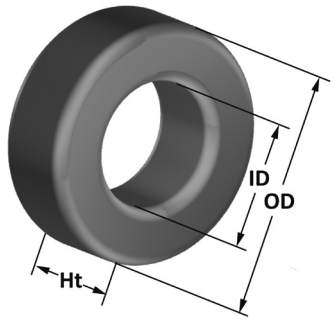
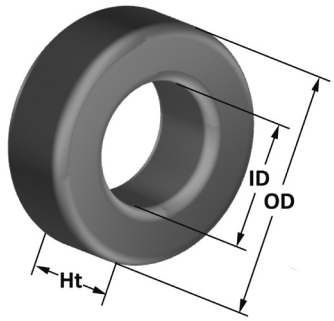


Typical Part Number: T 106 - 26 B /

- Toroidal Geometry
- OD in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate Height
- Code Area For Other Characteristics

Part Number	Physical Dimensions			Magnetic Dimensions			AL (nH/N²)	Ref. Perm.	Material
	OD (in/mm)	ID (in/mm)	HT (in/mm)	Ae (cm^2)	le (cm)	Ve (cm^3)			
T37-7	0.375 / 9.53	0.205 / 5.21	0.128 / 3.25	0.064	2.31	0.147	3.2	9	-7
T37-8/90							12	35	-8
T37-10							2.5	6	-10
T37-15							9	25	-15
T37-17							1.5	4	-17
T37-18							19	55	-18
T37-26							28.5	75	-26
T37-45							34	100	-45
T37-52							26	75	-52
T37-63							12	35	-63
T37-66							22.5	66	-66
T37-52C	0.375 / 9.53	0.205 / 5.21	0.096 / 2.44	0.05	2.31	0.116	18	75	-52
T38-2	0.375 / 9.53	0.175 / 4.45	0.190 / 4.83	0.114	2.18	0.248	7.4	10	-2
T38-8/90							20	35	-8
T38-18							36	55	-18
T38-26							49	75	-26
T38-45							65	100	-45
T38-52							49	75	-52
T38-63							22.5	35	-63
T38-66							43	66	-66
T40-26	0.400 / 10.16	0.205 / 5.21	0.163 / 4.14	0.093	2.41	0.223	36	75	-26
T40-52							36	75	-52
T40-66							31.5	66	-66
T44-0	0.440 / 11.18	0.229 / 5.82	0.159 / 4.04	0.099	2.68	0.266	0.65	1	-0
T44-2							5.2	10	-2
T44-6							4.2	8.5	-6
T44-7							4.6	9	-7
T44-8/90							18	35	-8
T44-10							3.3	6	-10
T44-14							6.2	14	-14
T44-15							16	25	-15
T44-17							1.85	4	-17
T44-18							25.5	55	-18
T44-26							37	75	-26
T44-45							46.5	100	-45
T44-52							35	75	-52
T44-63							18	35	-63
T44-66							30.5	66	-66
T44-70							46.5	100	-70
T44-2A	0.440 / 11.18	0.229 / 5.82	0.128 / 3.25	0.08	2.68	0.215	3.6	10	-2
T44-52B	0.440 / 11.18	0.229 / 5.82	0.196 / 4.98	0.1225	2.68	0.328	43	75	-52

Toroid
(continued)



Typical Part Number: T 106 - 26 B /

- Toroidal Geometry
- OD in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate Height
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Part Number	Physical Dimensions			Magnetic Dimensions			AL (nH/N²)	Ref. Perm.	Material
	OD (in/mm)	ID (in/mm)	HT (in/mm)	Ae (cm^2)	le (cm)	Ve (cm^3)			
T44-52C	0.440 / 11.18	0.229 / 5.82	0.250 / 6.35	0.157	2.68	0.419	55	75	-52
T44-52D	0.440 / 11.18	0.229 / 5.82	0.338 / 8.59	0.212	2.68	0.567	70	75	-52
T45-40	0.440 / 11.18	0.245 / 6.22	0.128 / 3.25	0.0765	2.73	0.209	22	60	-40
T50-0	0.500 / 12.70	0.303 / 7.70	0.190 / 4.83	0.112	3.19	0.358	0.64	1	-0
T50-1							10	20	-1
T50-2							4.9	10	-2
T50-3							17.5	35	-3
T50-6							4	8.5	-6
T50-7							4.3	9	-7
T50-8/90							17.5	35	-8
T50-10							3.1	6	-10
T50-14							5.9	14	-14
T50-17							1.8	4	-17
T50-18							24	55	-18
T50-26							33	75	-26
T50-45							44	100	-45
T50-52							33	75	-52
T50-63							15.5	35	-63
T50-66							29	66	-66
T50-70							44	100	-70
T50-2B	0.500 / 12.70	0.303 / 7.70	0.250 / 6.35	0.148	3.19	0.471	6.1	10	-2
T50-8B/90							23	35	-8
T50-18B							32	55	-18
T50-26B							43.5	75	-26
T50-45B							58	100	-45
T50-52B							43.5	75	-52
T50-63B							20	35	-63
T50-66B							38	66	-66
T50-18C	0.500 / 12.70	0.303 / 7.70	0.335 / 8.51	0.2	3.19	0.637	43	55	-18
T50-26C							61	75	-26
T50-18D	0.500 / 12.70	0.303 / 7.70	0.375 / 9.53	0.223	3.19	0.711	48	55	-18
T50-26D	0.500 / 12.70	0.303 / 7.70	0.375 / 9.53	0.223	3.19	0.711	72	75	-26
T50-52D							66	75	-52
T51-0	0.500 / 12.70	0.200 / 5.08	0.500 / 12.70	0.46	2.79	1.28	2.6	1	-0
T51-6							16.4	8.5	-6
T51-2A	0.500 / 12.70	0.200 / 5.08	0.375 / 9.53	0.345	2.79	0.963	16.6	10	-2
T51-2B	0.500 / 12.70	0.200 / 5.08	0.312 / 7.92	0.282	2.79	0.786	13.8	10	-2
T51-6B							10.2	8.5	-6

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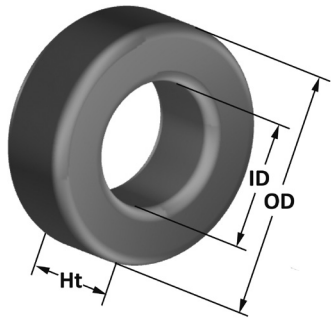
Toroid
(continued)

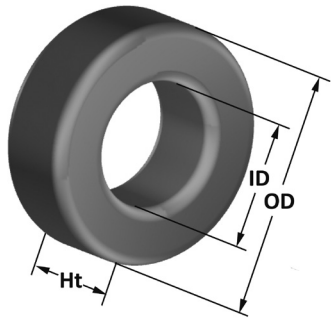


Typical Part Number: T 106 - 26 B /

- Toroidal Geometry
- OD in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate Height
- Code Area For Other Characteristics

Part Number	Physical Dimensions			Magnetic Dimensions			AL (nH/N²)	Ref. Perm.	Material
	OD (in/mm)	ID (in/mm)	HT (in/mm)	Ae (cm^2)	le (cm)	Ve (cm^3)			
T51-8C/90	0.500 / 12.70	0.200 / 5.08	0.250 / 6.35	0.233	2.79	0.622	37	35	-8
T51-18C							55	55	-18
T51-26C							83	75	-26
T51-52C							75	75	-52
T57-45	0.573 / 14.55	0.273 / 6.93	0.196 / 4.98	0.178	3.38	0.601	67	100	-45
T57-52							49.5	75	-52
T57-45A	0.573 / 14.55	0.273 / 6.93	0.263 / 6.68	0.239	3.38	0.805	88	100	-45
T57-52A							66	75	-52
T60-0	0.600 / 15.24	0.336 / 8.53	0.234 / 5.94	0.187	3.74	0.699	0.88	1	-0
T60-2							6.5	10	-2
T60-6							5.5	8.5	-6
T60-8/90							19	35	-8
T60-10							4	6	-10
T60-14							8.3	14	-14
T60-17							2.6	4	-17
T60-18							34.5	55	-18
T60-26							50	75	-26
T60-45							62	100	-45
T60-52							47	75	-52
T60-60							34.5	55	-60
T60-63							21.5	35	-63
T60-66							41	66	-66
T60-8D/90	0.600 / 15.24	0.336 / 8.53	0.470 / 11.94	0.374	3.74	1.40	38	35	-8
T60-26D							97	75	-26
T60-52D							94	75	-52
T68-0	0.690 / 17.53	0.370 / 9.40	0.190 / 4.83	0.179	4.23	0.759	0.75	1	-0
T68-1							11.5	20	-1
T68-2							5.7	10	-2
T68-3							19.5	35	-3
T68-6							4.7	8.5	-6
T68-7							5.2	9	-7
T68-8/90							19.5	35	-8
T68-10							3.2	6	-10
T68-14							7	14	-14
T68-17							2.1	4	-17
T68-18							29	55	-18
T68-26							43.5	75	-26
T68-40							35	60	-40
T68-45							53	100	-45
T68-52							40	75	-52
T68-60							29	55	-60
T68-63							18.5	35	-63

Toroid
(continued)



Typical Part Number: T 106 - 26 B /

- Toroidal Geometry
- OD in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate Height
- Code Area For Other Characteristics

Part Number	Physical Dimensions			Magnetic Dimensions			AL (nH/N^2)	Ref. Perm.	Material
	OD (in/mm)	ID (in/mm)	HT (in/mm)	Ae (cm^2)	le (cm)	Ve (cm^3)			
T68-66	0.690 / 17.53	0.370 / 9.40	0.190 / 4.83	0.179	4.23	0.759	35	66	-66
T68-2A	0.690 / 17.53	0.370 / 9.40	0.250 / 6.35	0.242	4.23	1.03	7	10	-2
T68-3A							26	35	-3
T68-6A							6.2	8.5	-6
T68-8A/90							26	35	-8
T68-14A							9.5	14	-14
T68-17A							2.8	4	-17
T68-18A							39.5	55	-18
T68-26A							58	75	-26
T68-40A							47	60	-40
T68-45A							71	100	-45
T68-52A							54	75	-52
T68-60A							39.5	55	-60
T68-63A							25	35	-63
T68-66A							47	66	-66
T68-2D	0.690 / 17.53	0.370 / 9.40	0.375 / 9.53	0.358	4.23	1.52	11.4	10	-2
T68-6D							9.4	8.5	-6
T68-14D							14.2	14	-14
T68-8D/90							39	35	-8
T68-17D							4.2	4	-17
T68-18D							58	55	-18
T68-26D							87	75	-26
T68-52D							80	75	-52
T68-17E	0.690 / 17.53	0.370 / 9.40	0.500 / 12.70	0.49	4.23	2.07	5.7	4	-17
T69-45	0.690 / 17.53	0.336 / 8.53	0.367 / 9.32	0.394	4.09	1.61	120	100	-45
T72-0	0.720 / 18.29	0.280 / 7.11	0.260 / 6.60	0.349	4.01	1.40	1.5	1	-0
T72-2							12.8	10	-2
T72-6							9	8.5	-6
T72-7							9.5	9	-7
T72-8/90							36	35	-8
T72-17							4.5	4	-17
T72-18							60	55	-18
T72-26							90	75	-26
T72-40							71	60	-40
T72-52							82	75	-52
T73-26	0.720 / 18.29	0.389 / 9.88	0.330 / 8.38	0.333	4.01	1.51	70	75	-26
T80-0	0.795 / 20.19	0.495 / 12.57	0.250 / 6.35	0.231	5.14	1.19	0.85	1	-0

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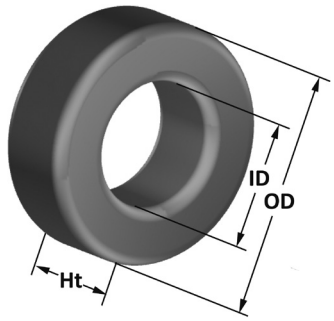
Toroid
(continued)

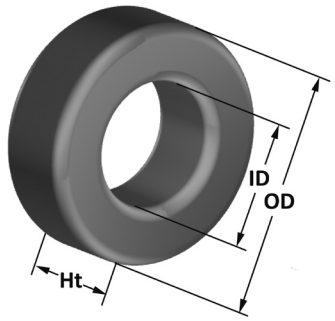


Typical Part Number: T 106 - 26 B /

- Toroidal Geometry
- OD in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate Height
- Code Area For Other Characteristics

Part Number	Physical Dimensions			Magnetic Dimensions			AL (nH/N²)	Ref. Perm.	Material
	OD (in/mm)	ID (in/mm)	HT (in/mm)	Ae (cm^2)	le (cm)	Ve (cm^3)			
T80-1	0.795 / 20.19	0.495 / 12.57	0.250 / 6.35	0.231	5.14	1.19	11.5	20	-1
T80-2							5.5	10	-2
T80-6							4.5	8.5	-6
T80-7							5	9	-7
T80-8/90							18	35	-8
T80-10							3.2	6	-10
T80-14							7.4	14	-14
T80-17							2.2	4	-17
T80-18							31	55	-18
T80-26							46	75	-26
T80-40							39.5	60	-40
T80-52							42	75	-52
T80-60							31	55	-60
T80-66							37	66	-66
T80-63							19.5	35	-63
T80-2B	0.795 / 20.19	0.495 / 12.57	0.375 / 9.53	0.347	5.14	1.78	9.5	10	-2
T80-6B							6.8	8.5	-6
T80-7B							8.4	9	-7
T80-8B/90							29.5	35	-8
T80-14B							11	14	-14
T80-18B							46.5	55	-18
T80-26B							71	75	-26
T80-40B							59	60	-40
T80-45B							84	100	-45
T80-52B							63	75	-52
T80-60B							46.5	55	-60
T80-63B							29.5	35	-63
T80-66B							55	66	-66
T80-2D	0.795 / 20.19	0.495 / 12.57	0.500 / 12.70	0.453	5.14	2.33	11	10	-2
T80-6D							9	8.5	-6
T80-8D/90							36	35	-8
T80-14D							13.3	14	-14
T80-17D							4.4	4	-17
T80-26D							92	75	-26
T80-40D							79	60	-40
T80-52D							83	75	-52
T90-8/90	0.900 / 22.86	0.550 / 13.97	0.375 / 9.53	0.395	5.78	2.28	30	35	-8
T90-18							47	55	-18
T90-26							70	75	-26
T90-52							64	75	-52
T90-60							47	55	-60

Toroid
(continued)



Typical Part Number: T 106 - 26 B /

- Toroidal Geometry
- OD in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate Height
- Code Area For Other Characteristics

Part Number	Physical Dimensions			Magnetic Dimensions			AL (nH/N²)	Ref. Perm.	Material
	OD (in/mm)	ID (in/mm)	HT (in/mm)	Ae (cm²)	le (cm)	Ve (cm³)			
T90-66	0.942 / 23.93	0.560 / 14.22	0.312 / 7.92	0.362	5.97	2.16	56	66	-66
T94-0							1.06	1	-0
T94-2							8.4	10	-2
T94-6							7	8.5	-6
T94-8/90							25	35	-8
T94-10							5.8	6	-10
T94-14							10	14	-14
T94-15							20	25	-15
T94-17							2.9	4	-17
T94-18							42	55	-18
T94-26							60	75	-26
T94-40							49	60	-40
T94-52							57	75	-52
T94-60							42	55	-60
T94-63							26	35	-63
T94-66							50	66	-66
T94-26D	0.942 / 23.93	0.560 / 14.22	0.625 / 15.88	0.724	5.97	4.32	115	75	-26
T95-26B	0.942 / 23.93	0.495 / 12.57	0.375 / 9.53	0.51	5.72	2.91	84	75	-26
T95-52B							84	75	-52
T106-0	1.060 / 26.92	0.570 / 14.48	0.437 / 11.10	0.659	6.49	4.28	1.9	1	-0
T106-1							28	20	-1
T106-2							13.5	10	-2
T106-3							45	35	-3
T106-6							11.6	8.5	-6
T106-7							13.3	9	-7
T106-8/90							45	35	-8
T106-10							8.5	6	-10
T106-14							17	14	-14
T106-17							5.1	4	-17
T106-26							93	75	-26
T106-30							30	22	-30
T106-34							40	33	-34
T106-35							40	33	-35
T106-18							70	55	-18
T106-40							81	60	-40
T106-45							125	100	-45
T106-52							95	75	-52
T106-60	1.060 / 26.92	0.570 / 14.48	0.437 / 11.10	0.659	6.49	4.28	70	55	-60
T106-63							44.5	35	-63
T106-66							84	66	-66

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Toroid
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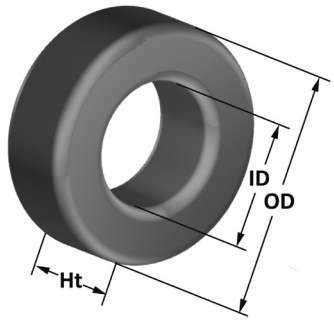
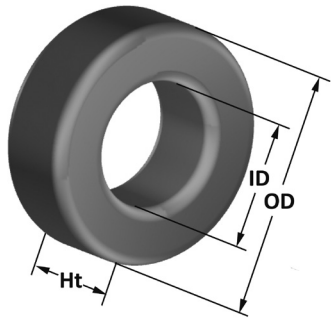


Typical Part Number: T 106 - 26 B /

- Toroidal Geometry
- OD in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate Height
- Code Area For Other Characteristics

Part Number	Physical Dimensions			Magnetic Dimensions			AL (nH/N^2)	Ref. Perm.	Material
	OD (in/mm)	ID (in/mm)	HT (in/mm)	Ae (cm^2)	le (cm)	Ve (cm^3)			
T106-18A	1.060 / 26.92	0.570 / 14.48	0.312 / 7.92	0.461	6.49	3.00	49	55	-18
T106-26A							67	75	-26
T106-40A							58	60	-40
T106-52A							67	75	-52
T106-66A							59	66	-66
T106-2B	1.060 / 26.92	0.570 / 14.48	0.575 / 14.61	0.858	6.49	5.57	17.6	10	-2
T106-6B							15.2	8.5	-6
T106-10B							11.1	6	-10
T106-17B							6.6	4	-17
T106-18B							91	55	-18
T106-26B							124	75	-26
T106-34B							55	33	-34
T106-40B							106	60	-40
T106-52B							124	75	-52
T106-60B							91	55	-60
T106-63B							57	35	-63
T106-66B							109	66	-66
T124-26	1.245 / 31.62	0.710 / 18.03	0.280 / 7.11	0.459	7.75	3.55	58	75	-26
T130-0	1.300 / 33.02	0.780 / 19.81	0.437 / 11.10	0.698	8.28	5.78	1.5	1	-0
T130-2							11	10	-2
T130-3							35	35	-3
T130-6							9.6	8.5	-6
T130-7							10.3	9	-7
T130-8/90							35	35	-8
T130-10							6.83	6	-10
T130-14							14	14	-14
T130-15							25	25	-15
T130-17							4	4	-17
T130-18							58	55	-18
T130-26							81	75	-26
T130-30							25	22	-30
T130-34							33.5	33	-34
T130-45							105	100	-45
T130-52							79	75	-52
T130-63							36	35	-63
T130-60							58	55	-60
T130-66							69	66	-66
T130-26A	1.300 / 33.02	0.780 / 19.81	0.225 / 5.72	0.361	8.28	2.99	41	75	-26
T130-40A							34	60	-40
T130-52A							41	75	-52

Toroid
(continued)



Typical Part Number: T 106 - 26 B /

- Toroidal Geometry
- OD in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate Height
- Code Area For Other Characteristics

Part Number	Physical Dimensions			Magnetic Dimensions			AL (nH/N²)	Ref. Perm.	Material
	OD (in/mm)	ID (in/mm)	HT (in/mm)	Ae (cm²)	le (cm)	Ve (cm³)			
T131-6	1.300 / 33.02	0.640 / 16.26	0.437 / 11.10	0.885	7.72	6.84	13.2	8.5	-6
T131-8/90							52.5	35	-8
T131-18							79	55	-18
T131-26							116	75	-26
T131-34							46.5	33	-34
T131-35							46.5	33	-35
T131-63							52.5	35	-63
T131-40							93	60	-40
T131-52							108	75	-52
T132-26	1.300 / 33.02	0.700 / 17.78	0.437 / 11.10	0.805	7.96	6.41	103	75	-26
T132-52							95	75	-52
T141-8/90	1.415 / 35.94	0.880 / 22.35	0.412 / 10.46	0.674	9.14	6.16	32	35	-8
T141-26							75	75	-26
T141-52							69	75	-52
T150-2	1.510 / 38.35	0.845 / 21.46	0.437 / 11.10	0.887	9.38	8.31	11.5	10	-2
T150-6							10	8.5	-6
T150-18							65	55	-18
T150-26							96	75	-26
T150-30							26	22	-30
T150-52							89	75	-52
T150-60							65	55	-60
T150-63							41	35	-63
T150-66							78	66	-66
T150-26A	1.510 / 38.35	0.845 / 21.46	0.325 / 8.26	0.657	9.38	6.16	66	75	-26
T157-0	1.570 / 39.88	0.950 / 24.13	0.570 / 14.48	1.06	10.1	10.7	1.8	1	-0
T157-1							32	20	-1
T157-2							14	10	-2
T157-6							11.5	8.5	-6
T157-7							12	9	-7
T157-8/90							42	35	-8
T157-10							8.2	6	-10
T157-14							17.5	14	-14
T157-15							36	25	-15
T157-17							5.3	4	-17
T157-18							73	55	-18
T157-26							100	75	-26
T157-30							31.5	22	-30
T157-34							43.5	33	-34
T157-35							43.5	33	-35

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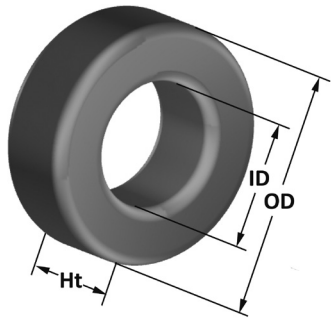
Toroid
(continued)

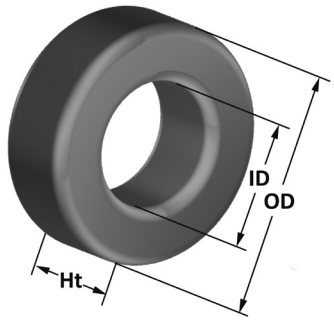


Typical Part Number: T 106 - 26 B /

- Toroidal Geometry
- OD in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate Height
- Code Area For Other Characteristics

Part Number	Physical Dimensions			Magnetic Dimensions			AL (nH/N²)	Ref. Perm.	Material
	OD (in/mm)	ID (in/mm)	HT (in/mm)	Ae (cm^2)	le (cm)	Ve (cm^3)			
T157-40	1.570 / 39.88	0.950 / 24.13	0.570 / 14.48	1.06	10.1	10.7	86	60	-40
T157-52							99	75	-52
T157-60							73	55	-60
T157-63							45	35	-63
T157-66							87	66	-66
T157-26B	1.570 / 39.88	0.950 / 24.13	0.710 / 18.03	1.32	10.1	13.3	122	75	-26
T175-2	1.750 / 44.45	1.070 / 27.18	0.650 / 16.51	1.34	11.2	15.0	15	10	-2
T175-6							12.5	8.5	-6
T175-8/90							48	35	-8
T175-18							82	55	-18
T175-26							105	75	-26
T175-52							105	75	-52
T175-60							82	55	-60
T175-66							82	55	-60
T184-0	1.840 / 46.74	0.950 / 24.13	0.710 / 18.03	1.88	11.2	21.0	3	1	-0
T184-2							24	10	-2
T184-3							72	35	-3
T184-6							19.5	8.5	-6
T184-8/90							72	35	-8
T184-10							13.8	6	-10
T184-14							28	14	-14
T184-15							55	25	-15
T184-17							8.7	4	-17
T184-18							116	55	-18
T184-26							169	75	-26
T184-30							51	22	-30
T184-34							70	33	-34
T184-35							70	33	-35
T184-40							143	60	-40
T184-52							159	75	-52
T184-60							116	55	-60
T184-63							72	35	-63
T184-66							139	66	-66
T200-2	2.000 / 50.80	1.250 / 31.75	0.550 / 13.97	1.27	13.0	16.4	12	10	-2
T200-6							10.4	8.5	-6
T200-7							10.5	9	-7
T200-8/90							42.5	35	-8
T200-18							67	55	-18
T200-26							92	75	-26
T200-34							37	33	-34

Toroid
(continued)



Typical Part Number: T 106 - 26 B /

- Toroidal Geometry
- OD in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate Height
- Code Area For Other Characteristics

Part Number	Physical Dimensions			Magnetic Dimensions			AL (nH/N²)	Ref. Perm.	Material
	OD (in/mm)	ID (in/mm)	HT (in/mm)	Ae (cm²)	le (cm)	Ve (cm³)			
T200-52	2.000 / 50.80	1.250 / 31.75	0.550 / 13.97	1.27	13.0	16.4	92	75	-52
T200-60							67	55	-60
T200-66							80	66	-66
T200-2B	2.000 / 50.80	1.250 / 31.75	1.000 / 25.40	2.31	13.0	29.8	21.8	10	-2
T200-8B/90							78.5	35	-8
T200-18B							120	55	-18
T200-26B							160	75	-26
T200-35B							74	33	-35
T200-40B							142	60	-40
T200-52B							155	75	-52
T200-60B							120	55	-60
T200-66B							145	66	-66
T200-26C	2.000 / 50.80	1.250 / 31.75	0.750 / 19.05	1.73	13.0	22.4	122	75	-26
T201-8/90	2.000 / 50.80	0.950 / 24.13	0.875 / 22.23	2.81	11.8	33.2	104	35	-8
T201-18							164	55	-18
T201-26							224	75	-26
T201-40							194	60	-40
T201-52							224	75	-52
T224-26C	2.250 / 57.15	1.250 / 31.75	0.750 / 19.05	2.31	14.0	32.2	155	75	-26
T224-52C							155	75	-52
T225-2	2.250 / 57.15	1.405 / 35.69	0.550 / 13.97	1.42	14.6	20.7	12	10	-2
T225-6							10.4	8.5	-6
T225-8/90							42.5	35	-8
T225-18							67	55	-18
T225-26							98	75	-26
T225-30							28	22	-30
T225-34							37	33	-34
T225-35							37	33	-35
T225-40							78	60	-40
T225-52							92	75	-52
T225-60							67	55	-60
T225-63							42.5	35	-63
T225-66							80	66	-66
T225-2B	2.250 / 57.15	1.405 / 35.69	1.000 / 25.40	2.59	14.6	37.8	21.5	10	-2
T225-6B							18.5	8.5	-6
T225-14B							28	14	-14
T225-26B							160	75	-26
T225-34B							67	33	-34
T225-52B							155	75	-52

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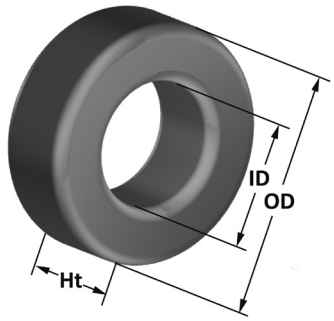
Toroid
(continued)

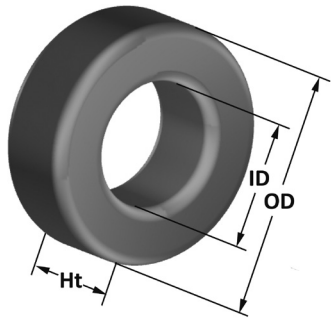


Typical Part Number: T 106 - 26 B /

- Toroidal Geometry
- OD in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate Height
- Code Area For Other Characteristics

Part Number	Physical Dimensions			Magnetic Dimensions			AL (nH/N²)	Ref. Perm.	Material
	OD (in/mm)	ID (in/mm)	HT (in/mm)	Ae (cm^2)	le (cm)	Ve (cm^3)			
T225-60B	2.250 / 57.15	1.405 / 35.69	1.000 / 25.40	2.59	14.6	37.8	120	55	-60
T225-66B							145	66	-66
T249-26	2.500 / 63.50	1.405 / 35.69	1.000 / 25.40	3.36	15.6	52.3	203	75	-26
T249-34							89	33	-34
T249-52							203	75	-52
T250-2	2.500 / 63.50	1.250 / 31.75	1.000 / 25.40	3.84	15.0	57.4	31	10	-2
T250-8/90							113	35	-8
T250-14							43	14	-14
T250-15							82.5	25	-15
T250-18							177	55	-18
T250-26							242	75	-26
T250-34							106	33	-34
T250-52							242	75	-52
T250-60							177	55	-60
T250-61							113	38	-61
T250-63							113	35	-63
T250-66							210	66	-66
T250-8A/90	2.500 / 63.50	1.250 / 31.75	0.500 / 12.70	1.92	15.0	28.7		35	-8
T250-52A							121	75	-52
T250-61A							56	38	-61
T270-40D	2.695 / 68.45	1.590 / 40.39	1.055 / 26.80	3.57	17.1	61.0	187	60	-40
T282-26	2.810 / 71.37	1.850 / 46.99	1.000 / 25.40	2.94	18.6	54.7	149	75	-26
T281-40A	2.820 / 71.63	1.500 / 38.10	0.650 / 16.51	2.63	17.2	45.2	130	60	-40
T300-0	3.040 / 77.22	1.930 / 49.02	0.500 / 12.70	1.68	19.8	33.4	1.5	1	-0
T300-2							11.4	10	-2
T300-6							9.5	8.5	-6
T300-8/90							37	35	-8
T300-18							58	55	-18
T300-26							80	75	-26
T300-30							23	22	-30
T300-34							34.5	33	-34
T300-35							34.5	33	-35
T300-52							80	75	-52
T300-60							58	55	-60
T300-66							70	66	-66
T300-61							37	38	-61

Toroid
(continued)



Typical Part Number: T 106 - 26 B /

- Toroidal Geometry
- OD in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate Height
- Code Area For Other Characteristics

Part Number	Physical Dimensions			Magnetic Dimensions			AL (nH/N²)	Ref. Perm.	Material
	OD (in/mm)	ID (in/mm)	HT (in/mm)	Ae (cm^2)	le (cm)	Ve (cm^3)			
T300-26C	3.040 / 77.22	1.930 / 49.02	0.750 / 19.05	2.55	19.8	50.6	120	75	-26
T300-2D	3.040 / 77.22	1.930 / 49.02	1.000 / 25.40	3.38	19.8	67.0	22.8	10	-2
T300-8D/90							74	35	-8
T300-14D							28	14	-14
T300-18D							116	55	-18
T300-26D							160	75	-26
T300-30D							46	22	-30
T300-34D							69	33	-34
T300-35D							69	33	-35
T300-40D							142	60	-40
T300-52D							160	75	-52
T300-60D							116	55	-60
T300-63D							74	35	-63
T353-40B	3.530 / 89.66	2.125 / 53.98	1.000 / 25.40	4.31	22.6	97.4	161.5	60	-40
T355-26	3.550 / 90.17	2.250 / 57.15	0.975 / 24.77	3.88	23.1	89.9	150	75	-26
T355-26A	3.550 / 90.17	2.250 / 57.15	0.910 / 23.11	3.63	23.1	83.9	140	75	-26
T355-26D	3.550 / 90.17	2.250 / 57.15	1.300 / 33.02	5.18	23.1	120	200	75	-26
T400-0	4.000 / 101.60	2.250 / 57.15	0.650 / 16.51	3.46	25.0	86.4	2.4	1	-0
T400-2							18	10	-2
T400-6							15	8.5	-6
T400-8/90							60	35	-8
T400-14							22.75	14	-14
T400-18							96	55	-18
T400-26							131	75	-26
T400-30							40.5	22	-30
T400-34							55	33	-34
T400-35							55	33	-35
T400-40							115	60	-40
T400-52							131	75	-52
T400-60							96	55	-60
T400-66							114	66	-66
T400-26B	4.000 / 101.60	2.250 / 57.15	1.000 / 25.40	5.35	25.0	133	205	75	-26
T400-35B							89	33	-35
T400-0D	4.000 / 101.60	2.250 / 57.15	1.300 / 33.02	6.85	25.0	171	4.8	1	-0
T400-2D							4.8	10	-2
T400-6D							30.5	8.5	-6

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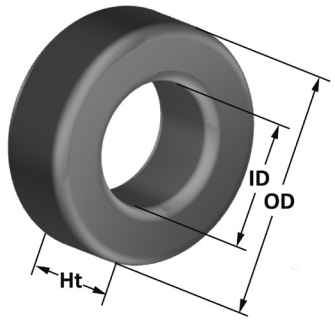
Toroid
(continued)

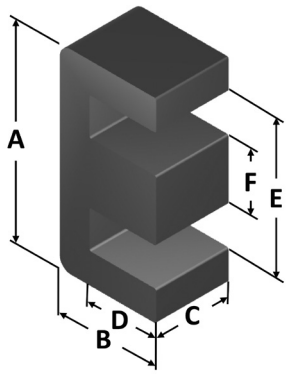


Typical Part Number: T 106 - 26 B /

- Toroidal Geometry
- OD in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate Height
- Code Area For Other Characteristics

Part Number	Physical Dimensions			Magnetic Dimensions			AL (nH/N^2)	Ref. Perm.	Material
	OD (in/mm)	ID (in/mm)	HT (in/mm)	Ae (cm^2)	le (cm)	Ve (cm^3)			
T400-14D	4.000 / 101.60	2.250 / 57.15	1.300 / 33.02	6.85	25.0	171	45.5	14	-14
T400-17D							14.4	4	-17
T400-26D							262	75	-26
T400-30D							81	22	-30
T400-34D							110	33	-34
T400-40D							230	60	-40
T400-52D							262	75	-52
T400-60D							192	55	-60
T400-63D							120	35	-63
T400-66D							228	66	-66
T520-2	5.200 / 132.08	3.080 / 78.23	0.800 / 20.32	5.24	33.1	173	20	10	-2
T520-26							149	75	-26
T520-30							45	22	-30
T520-35							65	33	-35
T520-40							119	60	-40
T520-52							137	75	-52
T520-63							68	35	-63
T520-66							130	66	-66
T520-30D	5.200 / 132.08	3.080 / 78.23	1.600 / 40.64	10.5	33.1	347	90	22	-30
T520-34D							130	33	-34
T520-35D							130	33	-35
T520-40D							240	60	-40
T650-2	6.500 / 165.10	3.500 / 88.90	2.000 / 50.80	18.4	39.9	734	58	10	-2
T650-8/90							200	35	-8
T650-14							75	14	-14
T650-26							434	75	-26
T650-30							127	22	-30
T650-35							191	33	-35
T650-34							191	33	-34
T650-52							405	75	-52
T650-63							200	35	-63
T650-66							380	66	-66

E-Core



Typical Part Number: E 168 - 26 A / G015

- E Core Geometry
- "A" Dimension in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate "C" Dimension
- Indictates Center-Leg Gap per Half in .001 inches

Part Number	Ind Size	Bobbin	Physical Dimensions						Magnetic Dimensions			AL (nH/N²)	Ref. Perm.	Material
			Dim A (in/mm)	Dim B (in/mm)	Dim C (in/mm)	Dim D (in/mm)	Dim F (in/mm)	Dim E (in/mm)	Ae (cm²)	le (cm)	Ve (cm³)			
E49-2	EE-28/29	PB49	0.500 / 12.70	0.219 / 5.56	0.125 / 3.18	0.156 / 3.96	0.125 / 3.18	0.375 / 9.52	0.101	2.86	0.288	10.7	10	-2
E49-8	EE-28/29	PB49										20.5	35	-8
E49-18	EE-28/29	PB49										29	55	-18
E49-26	EE-28/29	PB49										38	75	-26
E49-52	EE-28/29	PB49										38	75	-52
E49-66	EE-28/29	PB49										32	66	-66
E49-70	EE-28/29	PB49										45	100	-70
E50-26	DIN 13/4		0.505 / 12.83	0.252 / 6.40	0.148 / 3.76	0.177 / 4.50	0.149 / 3.78	0.354 / 8.99	0.143	3.08	0.441	48	75	-26
E50-52	DIN 13/4											47	75	-52
E65-8	DIN 16/5		0.645 / 16.38	0.320 / 8.13	0.182 / 4.62	0.236 / 5.98	0.182 / 4.62	0.445 / 11.30	0.224	3.98	0.861	30.5	35	-8
E65-26	DIN 16/5											58	75	-26
E65-52	DIN 16/5											56	75	-52
E65-66	DIN 16/5											48	66	-66
E75-2	EI-187	PB75	0.750 / 19.05	0.318 / 8.08	0.187 / 4.75	0.228 / 5.78	0.187 / 4.75	0.562 / 14.27	0.226	4.20	0.936	14.5	10	-2
E75-8	EI-187	PB75										33.5	35	-8
E75-18	EI-187	PB75										45.5	55	-18
E75-26	EI-187	PB75										64	75	-26
E75-40	EI-187	PB75										55	60	-40
E75-52	EI-187	PB75										59	75	-52
E80-8	DIN 20/6		0.795 / 20.19	0.391 / 9.93	0.230 / 5.84	0.280 / 7.11	0.230 / 5.84	0.575 / 14.60	0.333	4.84	1.63	38	35	-8
E80-26	DIN 20/6											73	75	-26
E80-45	DIN 20/6											95	100	-45
E80-52	DIN 20/6											73	75	-52
E99-2	DIN 25/7		1.000 / 25.40	0.500 / 12.70	0.287 / 7.29	0.345 / 8.76	0.287 / 7.29	0.695 / 17.65	0.548	6.08	3.38	24	10	-2
E99-8	DIN 25/7											51	35	-8
E99-26	DIN 25/7											96	75	-26
E99-52	DIN 25/7											96	75	-52
E99-45	DIN 25/7											120	100	-45
E100-2	EE-24/25		1.000 / 25.40	0.375 / 9.53	0.250 / 6.35	0.250 / 6.35	0.250 / 6.35	0.750 / 19.05	0.403	5.08	2.05	21	10	-2
E100-8	EE-24/25											48	35	-8
E100-18	EE-24/25											65	55	-18
E100-26	EE-24/25											92	75	-26
E100-52	EE-24/25											85	75	-52

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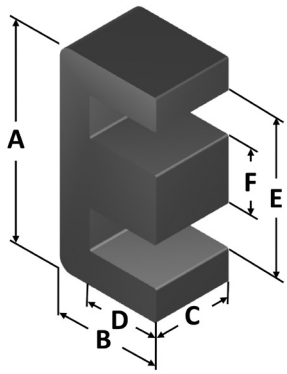
E-Core
(continued)

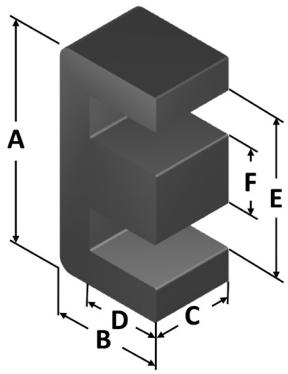


Typical Part Number: E 168 - 26 A / G015

- E Core Geometry
- "A" Dimension in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate "C" Dimension
- Indictates Center-Leg Gap per Half in .001 inches

Part Number	Ind Size	Bobbin	Physical Dimensions						Magnetic Dimensions			AL (nH/N²)	Ref. Perm.	Material
			Dim A (in/mm)	Dim B (in/mm)	Dim C (in/mm)	Dim D (in/mm)	Dim F (in/mm)	Dim E (in/mm)	Ae (cm²)	le (cm)	Ve (cm³)			
E100-60	EE-24/25	PB100E	1.000 / 25.40	0.375 / 9.53	0.250 / 6.35	0.250 / 6.35	0.250 / 6.35	0.750 / 19.05	0.403	5.08	2.05	65	55	-60
E100-70	EE-24/25	PB100E										110	100	-70
E137-2	EI-375	PB137	1.375 / 34.93	0.572 / 14.53	0.375 / 9.53	0.385 / 9.78	0.375 / 9.52	1.000 / 25.40	0.907	7.40	6.72	32	10	-2
E137-8	EI-375	PB137										67	35	-8
E137-18	EI-375	PB137										100	55	-18
E137-26	EI-375	PB137										134	75	-26
E137-52	EI-375	PB137										131	75	-52
E137-60	EI-375	PB137										100	55	-60
E137-66	EI-375	PB137										113	66	-66
E162-8	EI-21	PB162	1.625 / 41.28	0.671 / 17.04	0.500 / 12.70	0.421 / 10.69	0.500 / 12.70	1.125 / 28.58	1.61	8.41	13.6	105	35	-8
E162-18	EI-21	PB162										149	55	-18
E162-26	EI-21	PB162										210	75	-26
E162-52	EI-21	PB162										199	75	-52
E162-60	EI-21	PB162										149	55	-60
E162-66	EI-21	PB162										168	66	-66
E168-2	DIN 42/15	PB168	1.685 / 42.80	0.830 / 21.08	0.590 / 14.99	0.605 / 15.37	0.475 / 12.07	1.210 / 30.73	1.81	10.4	18.5	43.5	10	-2
E168-8	DIN 42/15	PB168										97	35	-8
E168-18	DIN 42/15	PB168										135	55	-18
E168-26	DIN 42/15	PB168										195	75	-26
E168-52	DIN 42/15	PB168										179	75	-52
E168-60	DIN 42/15	PB168										135	55	-60
E168-66	DIN 42/15	PB168										155	66	-66
E168-2A	DIN 42/20	PB168A	1.685 / 42.80	0.830 / 21.08	0.787 / 19.99	0.605 / 15.37	0.475 / 12.07	1.210 / 30.73	2.41	10.4	24.6	55	10	-2
E168-8A	DIN 42/20	PB168A										116	35	-8
E168-18A	DIN 42/20	PB168A										170	55	-18
E168-26A	DIN 42/20	PB168A										232	75	-26
E168-52A	DIN 42/20	PB168A										230	75	-52
E168-60A	DIN 42/20	PB168A										170	55	-60
E168-66A	DIN 42/20	PB168A										190	66	-66
E187-8	EI-625		1.865 / 47.37	0.776 / 19.71	0.620 / 15.75	0.476 / 12.09	0.620 / 15.75	1.250 / 31.75	2.48	9.53	23.3	144	35	-8
E187-18	EI-625											213	55	-18
E187-26	EI-625											265	75	-26
E187-52	EI-625											265	75	-52
E220-2	DIN 55/21	PB220	2.210 / 56.13	1.090 / 27.69	0.820 / 20.83	0.755 / 19.18	0.680 / 17.27	1.520 / 38.61	3.60	13.2	47.7	69	10	-2
E220-8	DIN 55/21	PB220										143	35	-8
E220-18	DIN 55/21	PB220										196	55	-18

E-Core
(continued)



Typical Part Number: E 168 - 26 A / G015

- E Core Geometry
- "A" Dimension in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate "C" Dimension
- Indictates Center-Leg Gap per Half in .001 inches

Part Number	Ind Size	Bobbin	Physical Dimensions						Magnetic Dimensions			AL (nH/N²)	Ref. Perm.	Material
			Dim A (in/mm)	Dim B (in/mm)	Dim C (in/mm)	Dim D (in/mm)	Dim F (in/mm)	Dim E (in/mm)	Ae (cm²)	le (cm)	Ve (cm³)			
E220-26	DIN 55/21	PB220	2.210 / 56.13	1.090 / 27.69	0.820 / 20.83	0.755 / 19.18	0.680 / 17.27	1.520 / 38.61	3.60	13.2	47.7	275	75	-26
E220-34	DIN 55/21	PB220										136	33	-34
E220-40	DIN 55/21	PB220										240	60	-40
E220-52	DIN 55/21	PB220										262	75	-52
E220-60	DIN 55/21	PB220										196	55	-60
E220-66	DIN 55/21	PB220										220	66	-66
E220-52/G020	DIN 55/21	PB220	2.210 / 56.13	1.090 / 27.69	0.820 / 20.83	0.755 / 19.18	0.680 / 17.27	1.520 / 38.61	3.60	13.2	47.7	183	75	-52
E220-26/G020	DIN 55/21	PB220										183	75	-26
E225-2	EI-75	PB225	2.240 / 56.90	0.938 / 23.83	0.745 / 18.92	0.570 / 14.48	0.745 / 18.92	1.500 / 38.10	3.58	11.5	40.8	76	10	-2
E225-8	EI-75	PB225										173	35	-8
E225-18	EI-75	PB225										240	55	-18
E225-26	EI-75	PB225										325	75	-26
E225-52	EI-75	PB225										325	75	-52
E305-2		PB305, PB305/V0/RY	3.051 / 77.50	1.526 / 38.76	0.933 / 23.70	1.059 / 26.90	0.933 / 23.70	2.118 / 53.80	5.62	18.5	104	75	10	-2
E305-8		PB305, PB305/V0/RY										156	35	-8
E305-18		PB305, PB305/V0/RY										222	55	-18
E305-26		PB305, PB305/V0/RY										287	75	-26
E305-30		PB305, PB305/V0/RY										124	22	-30
E305-34		PB305, PB305/V0/RY										150	33	-34
E305-52		PB305, PB305/V0/RY										287	75	-52
E305-60		PB305, PB305/V0/RY										222	55	-60
E305-66		PB305, PB305/V0/RY										250	66	-66
E305-26/G050		PB305, PB305/V0/RY										165	75	-26
E305-52/G050		PB305, PB305/V0/RY										165	75	-52
E305-2A	PB305A	PB305A/V0/RY	3.051 / 77.50	1.526 / 38.76	1.244 / 31.60	1.059 / 26.90	0.933 / 23.70	2.118 / 53.80	7.49	18.5	139	100	10	-2
E305-26A	PB305A	PB305A/V0/RY										382	75	-26
E305-26A/G050	PB305A	PB305A/V0/RY										219	75	-26
E305-40A	PB305A	PB305A/V0/RY										339	60	-40
E305-52A	PB305A	PB305A/V0/RY										382	75	-52
E305-52A/G050	PB305A	PB305A/V0/RY										219	75	-52
E305-60A	PB305A	PB305A/V0/RY										280	55	-60
E305-66A	PB305A	PB305A/V0/RY	3.051 / 77.50	1.526 / 38.76	1.244 / 31.60	1.059 / 26.90	0.933 / 23.70	2.118 / 53.80	7.49	18.5	139	315	66	-66
E315-52	DIN 80/20											190	75	-52
E315-66	DIN 80/20		3.150 / 80.01	1.500 / 38.10	0.780 / 19.81	1.111 / 28.21	0.780 / 19.81	2.370 / 60.20	3.92	19.3	75.6	170	66	-66

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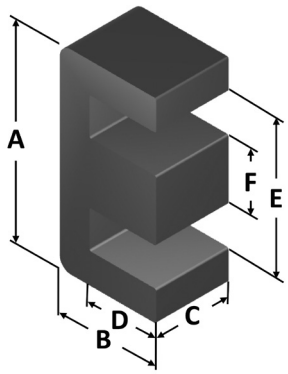
E-Core
(continued)

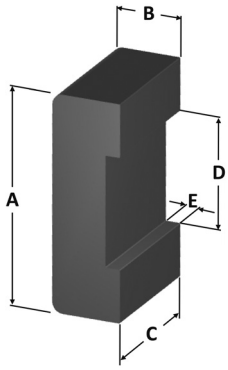


Typical Part Number: E 168 - 26 A / G015

- E Core Geometry
- "A" Dimension in 100th inches
- Micrometals Material Mix No.
- Letter Indicates Alternate "C" Dimension
- Indictates Center-Leg Gap per Half in .001 inches

Part Number	Ind Size	Bobbin	Physical Dimensions						Magnetic Dimensions			AL (nH/N²)	Ref. Perm.	Material
			Dim A (in/mm)	Dim B (in/mm)	Dim C (in/mm)	Dim D (in/mm)	Dim F (in/mm)	Dim E (in/mm)	Ae (cm²)	le (cm)	Ve (cm³)			
E315-52A	DIN 80/25		3.150 / 80.01	1.500 / 38.10	0.974 / 24.74	1.111 / 28.21	0.780 / 19.81	2.370 / 60.20	4.90	19.3	94.5	238	75	-52
E315-66A	DIN 80/25											213	66	-66
E315-52B	DIN 80/30		3.150 / 80.01	1.500 / 38.10	1.169 / 29.69	1.111 / 28.21	0.780 / 19.81	2.370 / 60.20	5.88	19.3	113	285	75	-52
E315-52D	DIN 80/40		3.150 / 80.01	1.500 / 38.10	1.559 / 39.60	1.111 / 28.21	0.780 / 19.81	2.370 / 60.20	7.84	19.3	151	370	75	-52
E450-2	EI-30	PB450/V0	4.500 / 114.30	1.818 / 46.18	1.375 / 34.93	1.125 / 28.58	1.375 / 34.93	3.120 / 79.25	12.2	22.9	280	132	10	-2
E450-26	EI-30	PB450/V0										540	75	-26
E450-30	EI-30	PB450/V0										235	22	-30
E450-34	EI-30	PB450/V0										300	33	-34
E450-40	EI-30	PB450/V0										480	60	-40
E450-52	EI-30	PB450/V0										500	75	-52
E450-60	EI-30	PB450/V0										400	55	-60
E450-66	EI-30	PB450/V0										460	66	-66
E610-2		PB610/V0/RY	6.102 / 154.99	3.051 / 77.50	1.866 / 47.40	2.118 / 53.80	1.866 / 47.40	4.236 / 107.59	22.5	37.0	832	163	10	-2
E610-26		PB610/V0/RY										588	75	-26
E610-34		PB610/V0/RY										314	33	-34
E610-63		PB610/V0/RY										314	35	-63
E610-66		PB610/V0/RY										500	66	-66
E827-2			8.268 / 210.01	4.922 / 125.01	2.520 / 64.01	3.662 / 93.00	2.520 / 64.01	5.748 / 146.00	41.0	58.2	2,384	175	10	-2
E827-26												620	75	-26
E827-30												280	22	-30
E827-35												378	33	-35
E827-63												320	35	-63
E827-60												474	55	-60

Bus Bar



Typical Part Number: HS 300 - 26 A

- Bus Bar Core Geometry
- Code to Indicate Max. Current
- Micrometals Material Mix No.
- Letter Indicates Alternate Length
- Code Area for Other Characteristics

Part Number	Physical Dimensions					Magnetic Dimensions			AL	Ref. Perm.	Material
	Dim A (in/mm)	Dim B (in/mm)	Dim C (in/mm)	Dim D (in/mm)	Dim E (in/mm)	Ae (cm^2)	le (cm)	Ve (cm^3)			
HS135-26	0.720 / 18.29	0.150 / 3.81	0.400 / 10.16	0.520 / 13.21	0.055 / 1.40	0.245	4.19	0.984	56.08	75	-26
HS300-8	1.020 / 25.91	0.325 / 8.26	0.500 / 12.70	0.520 / 13.21	0.070 / 1.78	0.806	5.92	4.61	68	35	-8
HS300-26									147	75	-26
HS300-52									147	75	-52
HS300-8A	1.020 / 25.91	0.325 / 8.26	0.625 / 15.88	0.520 / 13.21	0.070 / 1.78	1.01	5.92	5.77	83	35	-8
HS300-26A									179	75	-26
HS300-52A									179	75	-52
HS300-8B	1.020 / 25.91	0.325 / 8.26	0.750 / 19.05	0.520 / 13.21	0.070 / 1.78	1.21	5.92	6.92	95	35	-8
HS300-26B									208	75	-26
HS300-52B									208	75	-52
HS300-8C	1.020 / 25.91	0.325 / 8.26	0.875 / 22.23	0.520 / 13.21	0.070 / 1.78	1.41	5.92	8.06	107	35	-8
HS300-26C									232	75	-26
HS300-52C									232	75	-52
HS300-66C									204	66	-66
HS400-26	1.500 / 38.10	0.480 / 12.19	0.750 / 19.05	0.765 / 19.43	0.103 / 2.60	1.78	8.71	15.1	221	75	-26
HS400-26A	1.500 / 38.10	0.480 / 12.19	1.000 / 25.40	0.765 / 19.43	0.103 / 2.60	2.37	8.71	20.1	286	75	-26
HS400-26B	1.500 / 38.10	0.480 / 12.19	1.250 / 31.75	0.765 / 19.43	0.103 / 2.60	2.96	8.71	25.2	335	75	-26
HS400-26C	1.500 / 38.10	0.480 / 12.19	1.500 / 38.10	0.765 / 19.43	0.103 / 2.60	3.56	8.71	30.2	371	75	-26
HS400-52C									371	75	-52
HS465-26	2.039 / 51.79	0.315 / 8.00	0.866 / 22.00	1.528 / 38.81	0.059 / 1.50	1.43	11	14.9	152	75	-26
HS670-26/10	2.007 / 50.98	0.640 / 16.26	0.505 / 12.83	1.025 / 26.03	0.138 / 3.51	1.6	11.7	18.1	168	75	-26

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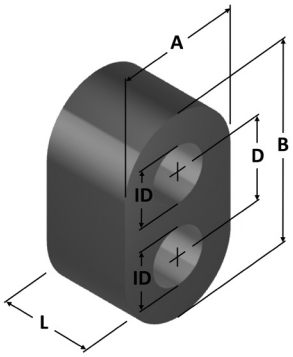
Balun Core

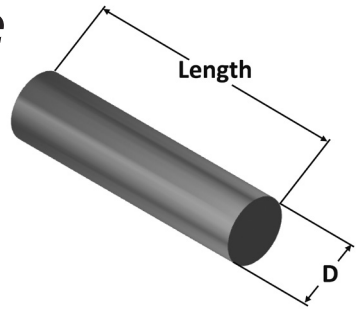


Typical Part Number: BLN 1728 - 10 A / 94

- Balun Core Geometry
- Part Size Indication
- Micrometals Material Mix No.
- Letter Indicates Alternate Length
- Indicates Parylene Coating

Part Number	Physical Dimensions					AL (nH/N²)	Ref. Perm.	Material
	Dim A (in/mm)	Dim B (in/mm)	L (in/mm)	ID (in/mm)	Dim D (in/mm)			
BLN814-0/94	0.082 / 2.08	0.140 / 3.56	0.093 / 2.36	0.033 / 0.84	0.058 / 1.47	2.5	1	-0
BLN814-2/94						8.1	10	-2
BLN814-6/94						7.3	8.5	-6
BLN814-8/94						14.4	35	-8
BLN814-10/94						5.6	6	-10
BLN814-17/94						4.1	4	-17
BLN814-0A/94	0.082 / 2.08	0.140 / 3.56	0.070 / 1.78	0.033 / 0.84	0.058 / 1.47	1.9	1	-0
BLN814-8A/94						10.5	35	-8
BLN814-10A/94						4.4	6	-10
BLN814-0B/94	0.081 / 2.06	0.138 / 3.51	0.053 / 1.35	0.031 / 0.79	0.057 / 1.45	N/A	1	-0
BLN814-10B/94A						3.5	6	-10
BLN1728-0/94	0.169 / 4.29	0.282 / 7.16	0.250 / 6.35	0.077 / 1.96	0.114 / 2.90	N/A	1	-0
BLN1728-2/94						22	10	-2
BLN1728-6/94						18	8.5	-6
BLN1728-8/94						55	35	-8
BLN1728-10/94						15.8	6	-10
BLN1728-2A/94	0.169 / 4.29	0.282 / 7.16	0.125 / 3.18	0.077 / 1.96	0.114 / 2.90	11	10	-2
BLN1728-6A/94						9	8.5	-6
BLN1728-8A/94						55	35	-8
BLN1728-10A/94						7.9	6	-10

Plain Core



Typical Part Number: P 16 32 - 1 40

- Plain (Rod) Core Geometry
- Diameter in 64th Inches
- Length in 32nd Inches
- Code Area for Other Characteristics
- Micrometals Material Mix No.

Part Number	Physical Dimensions		AL,ref (nH/t²) **	Ref. Perm.	Material
	D (in/mm) max	L (in/mm) nom			
P22-106	0.033 / 0.80	0.050 / 1.27	1.39	8.5	-6
P22-117			1.01	4	-17
P23-100	0.033 / 0.80	0.075 / 1.90	0.31	1	-0
P23-117			0.83	4	-17
P23-200	0.033 / 0.80	0.086 / 2.18	0.83	1	-0
P24-100	0.033 / 0.80	0.100 / 2.54	0.25	1	-0
P24-106			1.12	8.5	-6
P24-107			1.16	9	-7
P24-117			0.70	4	-17
P25-100	0.033 / 0.80	0.155 / 3.94	0.17	1	-0
P25-101			1.49	20	-1
P25-102			1.01	10	-2
P25-106			0.90	8.5	-6
P25-108			1.89	35	-8
P25-110			0.71	6	-10
P25-117			0.52	4	-17
P33-100	0.044 / 1.08	0.100 / 2.54	0.44	1	-0
P33-102			1.81	10	-2
P33-106			1.69	8.5	-6
P33-108			2.61	35	-8
P33-110			1.42	6	-10
P33-117			1.12	4	-17
P48-100	0.064 / 1.56	0.250 / 6.35	0.40	1	-0
P48-103			3.71	35	-3
P48-106			1.94	8.5	-6
P48-110			1.55	6	-10
P48-117			1.16	4	-17
P68-100	0.098 / 2.43	0.250 / 6.35	0.91	1	-0
P68-106			3.66	8.5	-6
P68-108			5.87	35	-8
P68-110			3.05	6	-10
P68-117			2.39	4	-17
P810-210	0.125 / 3.11	0.312 / 7.92	3.95	6	-10
P816-340	0.136 / 3.39	0.500 / 12.70	9.17	60	-40

**AL is approximate and for reference only

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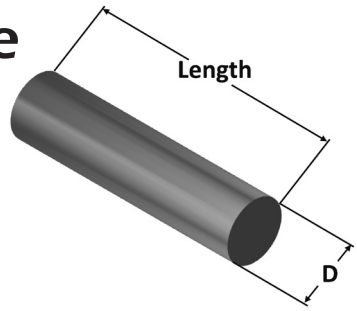
Plain Core
(continued)



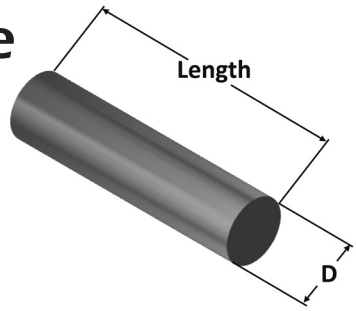
Typical Part Number: P 16 32 - 1 40

- Plain (Rod) Core Geometry
- Diameter in 64th Inches
- Length in 32nd Inches
- Code Area for Other Characteristics
- Micrometals Material Mix No.

Part Number	Physical Dimensions		AL,ref (nH/t²) **	Ref. Perm.	Material
	D (in/mm) max	L (in/mm) nom			
P825-108	0.136 / 3.39	0.775 / 19.69	7.65	35	-8
P825-110			2.66	6	-10
P825-117			1.94	4	-17
P825-140			9.21	60	-40
P912-102	0.147 / 3.67	0.375 / 9.52	6.03	10	-2
P1012-102	0.157 / 3.93	0.375 / 9.52	6.6	10	-2
P1216-140	0.190 / 4.77	0.500 / 12.70	12.6	60	-40
P1224-100	0.190 / 4.77	0.750 / 19.05	1.76	1	-0
P1224-101			10.0	20	-1
P1224-102			7.70	10	-2
P1224-103			11.5	35	-3
P1224-108			11.5	35	-8
P1224-117			4.64	4	-17
P1224-140			12.5	60	-40
P1224-152			12.9	75	-52
P1224-340/9*				60	-40
P1234-110	0.190 / 4.77	1.063 / 27.00	5.5	6	-10
P1338-240	0.200 / 5.02	1.200 / 30.48	13.6	60	-40
P1621-140	0.250 / 6.29	0.669 / 16.99	16.6	60	-40
P1624-102	0.250 / 6.29	0.750 / 19.05	9.72	10	-2
P1624-140			16.7	60	-40
P1624-240	0.255 / 6.42	0.750 / 19.05	17.1	60	-40
P1624-340/9*				60	-40
P1628-340/9*	0.255 / 6.42	0.875 / 22.22	17.2	60	-40
P1632-102	0.250 / 6.29	1.000 / 25.40	8.63	10	-2
P1632-140			17.2	60	-40
P1632-240	0.255 / 6.48	1.000 / 25.40	17.7	60	-40
P1632-340/9*	0.255 / 6.42	1.000 / 25.40	17.5	60	-40
P1640-201	0.255 / 6.42	1.250 / 31.75	11.9	20	-1
P1640-206			7.24	8.5	-6

* /9 parts have chamfered edges
**AL is approximate and for reference only

Plain Core
(continued)



Typical Part Number: P 16 32 - 1 40

- Plain (Rod) Core Geometry
- Diameter in 64th Inches
- Length in 32nd Inches
- Code Area for Other Characteristics
- Micrometals Material Mix No.

Part Number	Physical Dimensions		AL,ref (nH/t²) **	Ref. Perm.	Material
	D (in/mm) max	L (in/mm) nom			
P1640-240	0.255 / 6.42	1.250 / 31.75	17.6	60	-40
P1648-202	0.255 / 6.42	1.500 / 38.10	7.18	10	-2
P1648-210			4.96	6	-10
P1648-240			17.3	60	-40
P2028-102	0.309 / 7.79	0.875 / 22.22	12.2	10	-2
P2024-240	0.313 / 7.89	0.750 / 19.05	20.7	60	-40
P2032-240	0.313 / 7.89	1.000 / 25.40	21.1	60	-40
P2040-240	0.313 / 7.89	1.250 / 31.75	21.6	60	-40
P2060-240	0.313 / 7.89	1.875 / 47.63	21.3	60	-40
P2432-202	0.375 / 9.46	1.000 / 25.40	15.1	10	-2
P2432-240			24.8	60	-40
P2440-106	0.370 / 9.34	1.250 / 31.75	12.7	8.5	-6
P2440-201	0.375 / 9.46	1.250 / 31.75	19.3	20	-1
P2440-202			14.1	10	-2
P2440-218			25.2	55	-18
P2440-240			25.6	60	-40
P2448-202	0.375 / 9.46	1.500 / 38.10	13.1	10	-2
P2448-238			27.5	85	-38
P2448-240			25.8	60	-40
P2456-240	0.375 / 9.46	1.750 / 44.45	26.0	60	-40
P3232-106	0.500 / 12.64	1.000 / 25.40	20.7	8.5	-6
P3240-102	0.500 / 12.64	1.250 / 31.75	20.8	10	-2
P3240-108			30.7	35	-8
P3240-117			12.7	4	-17
P3240-140			33.3	60	-40
P3248-140	0.500 / 12.64	1.500 / 38.10	33.4	60	-40
P3252-140	0.500 / 12.64	1.625 / 41.28	34.1	60	-40

**AL is approximate and for reference only

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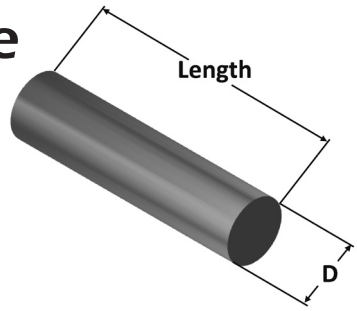
Plain Core
(continued)



Typical Part Number: P 16 32 - 1 40

- Plain (Rod) Core Geometry
- Diameter in 64th Inches
- Length in 32nd Inches
- Code Area for Other Characteristics
- Micrometals Material Mix No.

Part Number	Physical Dimensions		AL,ref (nH/t²) **	Ref. Perm.	Material
	D (in/mm) max	L (in/mm) nom			
P3256-102	0.500 / 12.64	1.750 / 44.45	18.5	10	-2
P3256-140			34.2	60	-40
P3264-102	0.500 / 12.64	2.000 / 50.80	17.5	10	-2
P3264-107			16.4	9	-7
P3264-140			34.5	60	-40
P4040-102	0.625 / 15.81	1.250 / 31.75	27.7	10	-2
P4040-126			41.7	75	-26
P4040-140			40.9	60	-40
P4048-140	0.625 / 15.81	1.500 / 38.10	41.5	60	-40
P4054-140	0.625 / 15.81	1.700 / 43.18	41.6	60	-40
P4840-102	0.750 / 18.99	1.250 / 31.75	34.5	10	-2
P4848-102	0.750 / 18.99	1.500 / 38.10	33.2	10	-2
P4848-140			49.0	60	-40
P4868-140	0.750 / 18.99	2.125 / 53.97	50.1	60	-40
P4876-126	0.750 / 18.99	2.375 / 60.32	52.7	75	-26
P4876-140			51.0	60	-40
P6432-140	1.000 / 25.34	1.000 / 25.40	60.9	60	-40
P6448-102	1.000 / 25.34	1.500 / 38.10	46.6	10	-2
P6464-126	1.000 / 25.34	2.000 / 50.80	66.7	75	-26
P6464-140			65.4	60	-40
P10032-118	1.575 / 39.88	1.000 / 25.40	91.8	55	-18
P14432-102	2.270 / 57.41	1.000 / 25.40	115	10	-2
P19236-126	3.060 / 77.24	1.150 / 29.21	172	75	-26
P19248-102	3.060 / 77.24	1.500 / 38.10	155	10	-2

**AL is approximate and for reference only

SINGLE LAYER WINDING TABLE

WIRE SIZE (AWG)				32	30	28	26	24	22	20	18	16	14	12	10	TOTAL POWER DISSIPATION (WATTS) VS TEMP RISE*		
RESISTIVITY (mΩ/cm)				5.38	3.39	2.13	1.34	0.842	0.530	0.333	0.209	0.132	0.0828	0.0521	0.0328			
MAXIMUM AMP PER ALLOWABLE TEMP RISE*			10°C	0.30	0.43	0.60	0.85	1.20	1.69	2.39	3.37	4.8	6.8	9.6	13.5			
			25°C	0.53	0.74	1.05	1.48	2.08	2.93	4.13	5.83	8.2	11.7	16.6	23.4			
			40°C	0.70	0.98	1.39	1.96	2.75	3.89	5.48	7.73	10.9	15.5	22.0	31.0			
Part No.	Awin (cm^2)	mlt cm/Turn*	SA (cm^2)*	NUMBER OF TURNS												10°C	25°C	40°C
T16	0.0234	0.70	0.658	18	14	11	8	5	3	1	1	1				0.010	0.031	0.055
T20	0.0308	0.84	0.962	22	17	13	9	7	5	3	1	1	1			0.015	0.046	0.080
T25	0.0559	1.14	1.68	30	24	18	14	10	8	5	3	1	1	1		0.027	0.080	0.141
T26	0.0410	1.66	2.31	26	20	15	11	8	6	4	2	1	1	1		0.037	0.110	0.193
T30	0.0937	1.40	2.49	41	32	25	19	15	11	8	6	4	1	1	1	0.039	0.119	0.208
T37	0.183	1.50	3.47	58	46	36	28	22	17	13	10	7	5	3	1	0.055	0.165	0.290
T38	0.130	1.85	3.91	48	38	30	23	18	14	10	7	5	3	1	1	0.062	0.186	0.327
T44	0.221	1.81	4.81	64	51	40	32	25	19	15	11	8	6	4	1	0.076	0.229	0.402
T50	0.406	2.03	6.44	88	70	56	44	35	27	21	16	12	9	7	4	0.102	0.307	0.539
T50B	0.406	2.33	7.16	88	70	56	44	35	27	21	16	12	9	7	4	0.113	0.341	0.599
T50D	0.406	2.97	8.66	88	70	56	44	35	27	21	16	12	9	7	4	0.137	0.412	0.724
T51C	0.164	2.46	6.66	55	43	34	27	21	16	12	9	6	4	2	1	0.106	0.317	0.557
T60	0.506	2.46	9.10	99	79	63	50	39	31	24	19	14	11	8	5	0.144	0.433	0.761
T60D	0.506	3.66	12.4	99	79	63	50	39	31	24	19	14	11	8	5	0.197	0.592	1.04
T68	0.621	2.43	10.6	110	88	70	56	44	35	27	21	16	12	9	6	0.167	0.502	0.883
T68A	0.621	2.73	11.5	110	88	70	56	44	35	27	21	16	12	9	6	0.183	0.549	0.964
T68D	0.621	3.37	13.5	110	88	70	56	44	35	27	21	16	12	9	6	0.215	0.645	1.13
T72	0.343	2.97	11.8	81	64	51	40	32	25	19	15	11	8	6	4	0.187	0.562	0.988
T80	1.14	2.86	15.0	151	121	96	77	61	48	38	30	23	18	14	10	0.238	0.714	1.25
T80B	1.14	3.50	17.4	151	121	96	77	61	48	38	30	23	18	14	10	0.275	0.827	1.45
T80D	1.14	4.13	19.7	151	121	96	77	61	48	38	30	23	18	14	10	0.313	0.939	1.65
T90	1.42	3.70	21.0	169	135	108	86	68	54	43	34	26	21	16	12	0.333	0.999	1.76
T94	1.48	3.47	21.0	172	138	110	88	70	55	44	35	27	21	16	12	0.333	1.00	1.76
T106	1.53	4.39	28.1	175	140	112	89	71	56	45	35	28	21	16	13	0.445	1.34	2.35
T106A	1.53	3.76	25.0	175	140	112	89	71	56	45	35	28	21	16	13	0.396	1.19	2.09
T106B	1.53	5.09	31.5	175	140	112	89	71	56	45	35	28	21	16	13	0.499	1.50	2.63
T124	2.41	3.89	32.1	221	177	141	113	90	72	57	45	36	28	22	17	0.509	1.53	2.69
T130	2.93	4.73	39.8	243	195	156	125	100	79	63	50	40	31	24	19	0.630	1.89	3.33
T130A	2.93	3.66	33.3	243	195	156	125	100	79	63	50	40	31	24	19	0.527	1.58	2.78
T131	1.95	4.91	38.3	198	158	127	101	81	64	51	40	32	25	19	15	0.607	1.82	3.20
T132	2.34	4.84	38.9	217	174	139	111	89	71	56	44	35	27	21	16	0.617	1.85	3.26
T141	3.75	4.77	45.2	276	221	177	142	113	90	72	57	45	36	28	22	0.716	2.15	3.78
T150	3.41	5.23	50.5	263	211	169	135	108	86	68	54	43	34	26	21	0.801	2.41	4.23
T157	4.34	5.92	59.7	297	238	191	153	122	97	78	62	49	39	30	24	0.946	2.84	4.99
T175	5.53	6.64	74.6	336	270	216	173	138	111	88	70	56	44	35	27	1.18	3.55	6.24
T184	4.34	7.32	80.9	297	238	191	153	122	97	78	62	49	39	30	24	1.28	3.85	6.77
T200	7.60	6.53	88.4	395	317	254	203	163	130	104	83	66	52	41	33	1.40	4.21	7.39
T200B	7.60	8.82	110	395	317	254	203	163	130	104	83	66	52	41	33	1.74	5.22	9.17
T201	4.34	8.57	98.7	297	238	191	153	122	97	78	62	49	39	30	24	1.56	4.70	8.25
T225	9.65	6.97	108	445	357	286	230	184	147	118	94	75	59	47	37	1.71	5.13	9.02
T225B	9.65	9.26	132	445	357	286	230	184	147	118	94	75	59	47	37	2.09	6.27	11.0
T250	7.54	10.1	150	393	315	253	203	162	130	104	83	66	52	41	32	2.37	7.12	12.5
T300	18.3	8.08	179	614	493	396	318	255	204	163	131	104	83	66	53	2.84	8.52	15.0
T300D	18.3	10.6	215	614	493	396	318	255	204	163	131	104	83	66	53	3.41	10.2	18.0
T400	25.0	10.9	300	718	577	463	372	298	239	192	153	123	98	78	62	4.75	14.3	25.1
T400D	25.0	14.2	360	718	577	463	372	298	239	192	153	123	98	78	62	5.71	17.1	30.1
T520	46.5	13.8	509	981	788	633	509	408	328	263	211	169	135	108	86	8.07	24.2	42.6
T520D	46.5	17.9	607	981	788	633	509	408	328	263	211	169	135	108	86	9.61	28.9	50.7
T650	60.3	22.7	927	1118	898	722	580	465	374	300	240	193	154	123	98	14.7	44.1	77.5

*Based on 75% Toroid ID remaining.

TEL (714) 970-9400 | FAX (714) 970-0400

FULL LAYER WINDING TABLE

WIRE SIZE (AWG)				32	30	28	26	24	22	20	18	16	14	12	10	AMPERE-TURNS DUE TO COPPER LOSS			TOTAL POWER DISSIPATION (WATTS) VS TEMP RISE		
RESISTIVITY (mΩ/cm)				5.38	3.39	2.13	1.34	0.842	0.530	0.333	0.209	0.132	0.0828	0.0521	0.0328						
Part No.	Awin (cm^2)	mlt (cm/ Turn)	SA (cm^2)	NUMBER OF TURNS												10°C	25°C	40°C	10°C	25°C	40°C
T16	0.0234	0.74	0.665	31	20	13	8	5	3	1	1	1				9	16	21	0.011	0.032	0.056
T20	0.0308	0.88	0.964	41	26	17	11	7	5	3	1	1	1			12	21	28	0.015	0.046	0.081
T25	0.0559	1.20	1.69	74	48	31	20	13	8	5	3	1	1	1		18	31	41	0.027	0.080	0.141
T26	0.0410	1.70	2.26	54	35	23	15	9	6	4	2	1	1	1		15	27	36	0.036	0.108	0.189
T30	0.0937	1.47	2.53	124	80	52	34	22	14	9	6	4	1	1	1	26	45	60	0.040	0.120	0.212
T37	0.183	1.61	3.64	242	157	101	66	42	27	18	11	7	5	3	1	42	73	97	0.058	0.173	0.304
T38	0.130	1.94	3.94	172	111	72	47	30	19	13	7	5	3	1	1	33	57	75	0.062	0.188	0.330
T44	0.221	1.93	4.97	292	189	122	79	51	33	21	14	9	6	4	1	50	86	114	0.079	0.237	0.416
T50	0.406	2.21	6.94	537	347	225	145	94	61	39	25	16	11	7	4	76	132	174	0.110	0.330	0.581
T51C	0.164	2.55	6.59	217	140	91	59	38	25	16	10	6	4	2	1	42	73	97	0.104	0.314	0.551
T60	0.506	2.66	9.63	670	433	280	181	117	76	49	32	21	13	9	5	91	158	210	0.153	0.458	0.806
T68	0.621	2.64	11.2	822	531	344	222	144	93	60	39	25	16	11	6	109	189	251	0.178	0.533	0.937
T72	0.343	3.10	11.8	454	294	190	123	79	51	33	21	14	9	6	4	77	134	178	0.187	0.562	0.987
T80	1.14	3.19	16.6	1.51K	976	631	408	264	171	110	71	46	30	19	13	165	285	378	0.263	0.790	1.39
T90	1.42	4.05	22.9	1.88K	1.22K	786	508	329	213	138	89	58	37	24	16	192	332	441	0.363	1.09	1.92
T94	1.48	3.83	23.0	1.96K	1.27K	819	530	343	222	143	93	60	39	25	16	201	349	463	0.365	1.09	1.92
T106	1.53	4.73	29.7	2.02K	1.31K	847	548	354	229	148	96	62	40	26	17	210	363	481	0.471	1.41	2.48
T124	2.41	4.33	35.2	3.19K	2.06K	1.33K	863	558	361	233	151	98	63	41	26	299	518	687	0.558	1.68	2.94
T130	2.93	5.25	43.8	3.88K	2.51K	1.62K	1.05K	679	439	284	184	119	77	50	32	334	579	768	0.694	2.08	3.66
T131	1.95	5.27	39.9	2.58K	1.67K	1.08K	698	452	292	189	122	79	51	33	21	259	449	596	0.632	1.90	3.34
T132	2.34	5.26	41.5	3.10K	2.00K	1.30K	838	542	350	227	147	95	61	40	26	291	504	668	0.658	1.98	3.47
T141	3.75	5.37	50.7	4.96K	3.21K	2.08K	1.34K	868	562	363	235	152	98	64	41	402	697	924	0.804	2.41	4.24
T150	3.41	5.75	54.7	4.51K	2.92K	1.89K	1.22K	790	511	330	214	138	89	58	37	385	667	884	0.867	2.60	4.58
T157	4.34	6.55	65.7	5.74K	3.71K	2.40K	1.55K	1.01K	650	420	272	176	114	74	48	446	773	1025	1.04	3.13	5.50
T175	5.53	7.35	82.5	7.32K	4.73K	3.06K	1.98K	1.28K	828	536	347	224	145	94	61	533	923	1224	1.31	3.93	6.90
T184	4.34	7.88	85.1	5.74K	3.71K	2.40K	1.55K	1.01K	650	420	272	176	114	74	48	463	802	1064	1.35	4.05	7.12
T200	7.60	7.39	99.8	10.1K	6.50K	4.21K	2.72K	1.76K	1.14K	736	476	308	199	129	83	684	1186	1573	1.58	4.75	8.35
T201	4.34	9.10	102	5.74K	3.71K	2.40K	1.55K	1.01K	650	420	272	176	114	74	48	472	817	1084	1.62	4.85	8.53
T225	9.65	7.94	122	12.8K	8.26K	5.34K	3.46K	2.24K	1.45K	935	605	391	253	164	106	823	1426	1891	1.93	5.81	10.2
T250	7.54	10.8	156	9.98K	6.45K	4.17K	2.70K	1.75K	1.13K	730	472	306	198	128	83	705	1223	1621	2.47	7.42	13.0
T300	18.3	9.43	208	24.2K	15.7K	10.1K	6.55K	4.24K	2.74K	1.77K	1.15K	742	480	310	201	1358	2353	3120	3.30	9.90	17.4
T400	25.0	12.3	333	33.1K	21.4K	13.8K	8.95K	5.79K	3.75K	2.42K	1.57K	1.01K	655	424	274	1758	3047	4039	5.28	15.8	27.9
T520	46.5	15.9	575	61.5K	39.8K	25.7K	16.6K	10.8K	6.97K	4.51K	2.91K	1.89K	1.22K	788	510	2771	4802	6367	9.11	27.4	48.1
T650	60.3	24.9	997	79.8K	51.6K	33.4K	21.6K	14.0K	9.03K	5.84K	3.78K	2.44K	1.58K	1.02K	661	3321	5754	7629	15.8	47.4	83.4
E CORES (55% Fill)																					
E49	0.247	2.54	5.44	225	146	94	61	39	26	17	11	7	4	3	2	42	71	95	0.09	0.26	0.46
E75	0.543	3.80	11.95	496	320	207	134	87	56	36	23	15	10	6	4	73	127	168	0.19	0.57	1.00
E100	0.798	5.08	19.35	728	471	305	197	127	82	53	34	22	14	9	6	98	169	224	0.31	0.92	1.62
E118	1.26	5.38	31.72	1.15K	744	481	311	201	130	84	54	35	23	15	10	153	266	352	0.50	1.51	2.65
E125	1.35	6.42	37.32	1.23K	797	515	333	216	139	90	58	38	24	16	10	157	272	361	0.59	1.78	3.12
E137	1.54	6.99	39.62	1.41K	909	588	380	246	159	103	67	43	28	18	12	166	288	382	0.63	1.89	3.31
E145	1.85	7.42	49.02	1.69K	1.09K	706	457	295	191	124	80	52	33	22	14	197	340	451	0.78	2.33	4.10
E162	1.68	8.26	55.21	1.53K	992	641	415	268	174	112	73	47	30	20	13	189	327	433	0.88	2.63	4.62
E168	2.84	9.14	73.03	2.59K	1.68K	1.08K	701	454	293	190	123	79	51	33	21	267	463	613	1.16	3.48	6.11
E168A	2.84	10.14	81.53	2.59K	1.68K	1.08K	701	454	293	190	123	79	51	33	21	267	464	615	1.29	3.88	6.82
E187	1.91	9.50	73.63	1.74K	1.13K	729	472	305	197	128	83	53	35	22	14	216	373	495	1.17	3.50	6.16
E220	4.06	11.89	125.03	3.71K	2.40K	1.55K	1.00K	648	419	271	175	113	73	47	31	366	635	844	1.98	5.95	10.5
E225	2.75	11.40	106.64	2.51K	1.62K	1.05K	679	439	284	184	119	77	50	32	21	285	494	654	1.69	5.08	8.92
E305	7.99	15.50	226.00	7.29K	4.72K	3.05K	1.97K	1.28K	825	534	345	223	144	93	60	605	1051	1390	3.58	10.8	18.9
E305A	7.99	17.08	250.49	7.29K	4.72K	3.05K	1.97K	1.28K	825	534	345	223	144	93	60	607	1051	1396	3.97	11.9	21.0
E450	12.5	22.83	415.92	11.4K	7.38K	4.77K	3.09K	2.00K	1.29K	835	540	349	226	146	95	847	1468	1946	6.59	19.8	34.8
E450H	12.5	19.34	343.80	11.4K	7.38K	4.77K	3.09K	2.00K	1.29K	835	540	349	226	146	95	837	1451	1923	5.45	16.4	28.8

*Based on 45% Toroid ID remaining.

Package Packaging and Weights

Due to the high density of iron powder cores, freight charges can be a significant part of the total cost.
The table below is provided to assist in planning shipment sizes and estimating freight costs.
Micrometals standard box size is 6"x9"x12".
Standard pallets weigh 40lbs when empty. Fully stacked, they contain 48 boxes and have dimensions of 38"x48"x32".

P/N	Min. Pack Qty (bag or board)	Full Box pcs.	Ship Weight per box		P/N	Min. Pack Qty (bag or board)	Full Box pcs.	Ship Weight per box		P/N	Min. Pack Qty (bag or board)	Full Box pcs.	Ship Weight per box		P/N	Min. Pack Qty (bag or board)	Full Box pcs.	Ship Weight per box	
			(kg)	(lb)				(kg)	(lb)				(kg)	(lb)				(kg)	(lb)
T5-0	25,000	250,000	2.13	4.70	T20-2	10,000	100,000	14.61	32.20	T26-45	5,000	20,000	20.35	44.86	T37-63	4,000	20,000	18.69	41.20
T5-6	25,000	250,000	2.13	4.70	T20-6	10,000	100,000	14.61	32.20	T26-52	5,000	20,000	20.05	44.20	T37-66	4,000	20,000	20.05	44.20
T5-10	25,000	250,000	2.13	4.70	T20-8/90	10,000	100,000	19.14	42.20	T27-0	7,500	30,000	6.44	14.20	T38-2	2,500	10,000	13.70	30.20
T5-17	25,000	250,000	2.13	4.70	T20-10	10,000	100,000	13.70	30.20	T27-2	7,500	30,000	13.24	29.20	T38-8/90	2,500	10,000	17.33	38.20
T7-0	25,000	250,000	3.27	7.20	T20-15	10,000	100,000	18.23	40.20	T27-6	7,500	30,000	13.24	29.20	T38-18	2,500	10,000	17.78	39.20
T7-2	25,000	250,000	4.40	9.70	T20-17	10,000	100,000	11.43	25.20	T27-8/90	7,500	30,000	16.95	37.36	T38-26	2,500	10,000	19.60	43.20
T7-6	25,000	250,000	4.40	9.70	T20-18	10,000	100,000	19.14	42.20	T27-10	7,500	30,000	11.88	26.20	T38-45	2,500	10,000	19.14	42.19
T7-10	25,000	250,000	4.40	9.70	T20-26	10,000	100,000	20.05	44.20	T27-17	7,500	30,000	10.25	22.60	T38-52	2,500	10,000	19.60	43.20
T7-17	25,000	250,000	4.40	9.70	T20-40	10,000	100,000	19.60	43.20	T27-18	7,500	30,000	17.33	38.20	T38-63	2,500	10,000	16.42	36.20
T10-0	25,000	250,000	4.40	9.70	T20-52	10,000	100,000	20.05	44.20	T27-26	7,500	30,000	18.69	41.20	T38-66	2,500	10,000	17.33	38.20
T10-2	25,000	250,000	6.67	14.70	T20-63	10,000	100,000	16.87	37.20	T27-52	7,500	30,000	18.69	41.20	T40-26	2,000	10,000	17.33	38.20
T10-6	25,000	250,000	6.67	14.70	T20-66	10,000	100,000	17.78	39.20	T30-0	5,000	25,000	6.78	14.95	T40-52	2,000	10,000	17.33	38.20
T10-10	25,000	250,000	5.53	12.20	T20-70	10,000	100,000	21.41	47.20	T30-2	5,000	25,000	14.61	32.20	T40-66	2,000	10,000	17.78	39.20
T10-17	25,000	250,000	5.53	12.20	T20-52E	5,000	30,000	17.57	38.74	T30-6	5,000	25,000	14.61	32.20	T44-0	2,000	10,000	6.89	15.20
T12-0	25,000	250,000	6.67	14.70	T22-0	10,000	40,000	6.99	15.40	T30-7	5,000	25,000	14.61	32.20	T44-2	2,000	10,000	15.06	33.20
T12-2	25,000	250,000	12.34	27.20	T22-6	10,000	40,000	15.15	33.40	T30-8/90	5,000	25,000	18.57	40.95	T44-6	2,000	10,000	14.61	32.20
T12-6	25,000	250,000	12.34	27.20	T22-10	10,000	40,000	13.70	30.20	T30-10	5,000	25,000	13.47	29.70	T44-7	2,000	10,000	14.61	32.20
T12-10	25,000	250,000	11.20	24.70	T22-17	10,000	40,000	11.54	25.44	T30-17	5,000	25,000	12.34	27.20	T44-8/90	2,000	10,000	19.14	42.20
T12-17	25,000	250,000	10.07	22.20	T22-26	10,000	40,000	19.69	43.40	T30-18	5,000	25,000	18.57	40.95	T44-10	2,000	10,000	13.70	30.20
T12-26	25,000	250,000	14.04	30.95	T22-52	10,000	40,000	19.69	43.40	T30-26	5,000	25,000	21.07	46.45	T44-14	2,000	10,000	15.51	34.20
T12-45	25,000	250,000	14.72	32.45	T22-0A	10,000	40,000	5.01	11.04	T30-40	5,000	25,000	19.71	43.45	T44-15	2,000	10,000	18.23	40.20
T12-2B	25,000	250,000	10.07	22.20	T22-10A	10,000	40,000	10.20	22.48	T30-52	5,000	25,000	21.07	46.45	T44-17	2,000	10,000	11.88	26.20
T12-6B	25,000	250,000	10.07	22.20	T22-17A	10,000	40,000	10.20	22.48	T30-63	5,000	25,000	15.17	33.45	T44-18	2,000	10,000	18.46	40.70
T12-10B	25,000	250,000	10.07	22.20	T25-0	10,000	40,000	6.44	14.20	T30-66	5,000	25,000	19.14	42.20	T44-26	2,000	10,000	19.82	43.70
T14-6	20,000	200,000	12.79	28.20	T25-2	10,000	40,000	13.70	30.20	T30-52A	5,000	20,000	9.35	20.62	T44-45	2,000	10,000	20.48	45.14
T14-45A	20,000	200,000	15.15	33.40	T25-3	10,000	40,000	15.88	35.00	T30-6B	5,000	20,000	8.26	18.20	T44-52	2,000	10,000	20.05	44.20
T14-52A	20,000	200,000	14.79	32.60	T25-6	10,000	40,000	11.70	25.80	T32-52	4,000	20,000	20.96	46.20	T44-63	2,000	10,000	17.15	37.80
T16-0	20,000	200,000	9.16	20.20	T25-10	10,000	40,000	11.88	26.20	T37-0	4,000	20,000	7.35	16.20	T44-66	2,000	10,000	17.78	39.20
T16-2	20,000	200,000	17.33	38.20	T25-15	10,000	40,000	14.61	32.20	T37-1	4,000	20,000	17.33	38.20	T44-70	2,000	10,000	21.41	47.20
T16-3	20,000	200,000	20.96	46.20	T25-17	10,000	40,000	10.07	22.20	T37-2	4,000	20,000	16.42	36.20	T44-2A	2,000	10,000	12.34	27.20
T16-6	20,000	200,000	16.42	36.20	T25-18	10,000	40,000	16.42	36.20	T37-3	4,000	20,000	20.05	44.20	T44-52B	1,500	7,500	19.03	41.95
T16-10	20,000	200,000	15.51	34.20	T25-26	10,000	40,000	17.33	38.20	T37-6	4,000	20,000	15.51	34.20	T44-52C	1,000	5,000	15.69	34.60
T16-15	20,000	200,000	19.14	42.20	T25-45	10,000	40,000	17.13	37.76	T37-7	4,000	20,000	14.61	32.20	T44-52D	1,000	5,000	21.64	47.70
T16-17	20,000	200,000	13.70	30.20	T25-52	10,000	40,000	17.33	38.20	T37-8/90	4,000	20,000	20.05	44.20	T45-40	2,000	10,000	13.70	30.20
T16-18	20,000	200,000	20.96	46.20	T25-63	10,000	40,000	14.79	32.60	T37-10	4,000	20,000	14.61	32.20	T50-0	1,500	6,000	5.62	12.40
T16-26	20,000	200,000	22.77	50.20	T25-66	10,000	40,000	15.69	34.60	T37-15	4,000	20,000	19.14	42.20	T50-1	1,500	6,000	14.61	32.20
T16-45	20,000	200,000	21.14	46.60	T25-6A	10,000	50,000	12.34	27.20	T37-17	4,000	20,000	12.79	28.20	T50-2	1,500	6,000	12.43	27.40
T16-52	20,000	200,000	22.77	50.20	T25-52A	10,000	50,000	13.86	30.55	T37-18	4,000	20,000	20.96	46.20	T50-3	1,500	6,000	15.42	34.00
T16-60	20,000	200,000	19.14	42.20	T26-8/90	5,000	20,000	17.33	38.20	T37-26	4,000	20,000	23.22	51.20	T50-6	1,500	6,000	12.16	26.80
T18-6	20,000	200,000	13.70	30.20	T26-18	5,000	20,000	18.23	40.20	T37-45	4,000	20,000	22.72	50.10	T50-7	1,500	6,000	12.29	27.10
T20-0	10,000	100,000	7.35	16.20	T26-26	5,000	20,000	20.08	44.26	T37-52	4,000	20,000	22.32	49.20	T50-8/90	1,500	6,000	16.37	36.10

TEL (714) 970-9400 | FAX (714) 970-0400

P/N	Min. Pack Qty (bag or board)	Full Box pcs.	Ship Weight per box (kg)	Ship Weight per box (lb)	P/N	Min. Pack Qty (bag or board)	Full Box pcs.	Ship Weight per box (kg)	Ship Weight per box (lb)	P/N	Min. Pack Qty (bag or board)	Full Box pcs.	Ship Weight per box (kg)	Ship Weight per box (lb)	P/N	Min. Pack Qty (bag or board)	Full Box pcs.	Ship Weight per box (kg)	Ship Weight per box (lb)
T50-10	1,500	6,000	11.07	24.40	T60-8D/90	400	1,600	16.06	35.42	T72-8/90	500	2,000	19.79	43.62	T90-66	250	1,000	16.10	35.50
T50-14	1,500	6,000	12.70	28.00	T60-26D	400	1,600	17.47	38.52	T72-17	500	2,000	12.34	27.20	T94-0	250	1,250	7.06	15.57
T50-17	1,500	6,000	9.16	20.20	T60-52D	400	1,600	16.98	37.43	T72-18	500	2,000	19.84	43.74	T94-2	250	1,250	15.33	33.79
T50-18	1,500	6,000	15.69	34.60	T68-0	750	3,000	6.10	13.45	T72-26	500	2,000	21.05	46.40	T94-6	250	1,250	14.61	32.20
T50-26	1,500	6,000	16.51	36.40	T68-1	750	3,000	14.91	32.86	T72-40	500	2,000	20.32	44.80	T94-8/90	250	1,250	18.86	41.58
T50-45	1,500	6,000	16.79	37.02	T68-2	750	3,000	12.56	27.70	T72-52	500	2,000	21.05	46.40	T94-10	250	1,250	14.04	30.95
T50-52	1,500	6,000	16.65	36.70	T68-3	750	3,000	16.37	36.10	T73-26	400	2,000	22.20	48.94	T94-14	250	1,250	16.14	35.58
T50-63	1,500	6,000	13.93	30.70	T68-6	750	3,000	12.70	28.00	T80-0	400	2,000	6.44	14.20	T94-15	250	1,250	18.29	40.33
T50-66	1,500	6,000	15.42	34.00	T68-7	750	3,000	12.70	28.00	T80-1	400	2,000	15.42	34.00	T94-17	250	1,250	11.61	25.61
T50-70	1,500	6,000	17.33	38.20	T68-8/90	750	3,000	16.44	36.25	T80-2	400	2,000	13.15	29.00	T94-18	250	1,250	18.80	41.45
T50-2B	1,000	5,000	13.59	29.95	T68-10	750	3,000	11.88	26.20	T80-6	400	2,000	12.79	28.20	T94-26	250	1,250	20.28	44.70
T50-8B/90	1,000	5,000	18.23	40.20	T68-14	750	3,000	13.03	28.72	T80-7	400	2,000	12.79	28.20	T94-40	250	1,250	20.28	44.71
T50-18B	1,000	5,000	17.33	38.20	T68-17	750	3,000	9.98	22.00	T80-8/90	400	2,000	16.96	37.40	T94-52	250	1,250	20.16	44.45
T50-19B	1,000	5,000	17.33	38.20	T68-18	750	3,000	16.65	36.70	T80-10	400	2,000	11.97	26.40	T94-60	250	1,250	18.06	39.83
T50-26B	1,000	5,000	17.55	38.70	T68-26	750	3,000	17.53	38.65	T80-14	400	2,000	13.61	30.00	T94-63	250	1,250	17.78	39.20
T50-45B	1,000	5,000	19.14	42.20	T68-40	750	3,000	17.23	37.99	T80-17	400	2,000	9.89	21.80	T94-66	250	1,250	18.86	41.58
T50-52B	1,000	5,000	18.01	39.70	T68-45	750	3,000	17.69	39.00	T80-18	400	2,000	17.24	38.00	T94-26D	120	600	19.82	43.70
T50-63B	1,000	5,000	15.51	34.20	T68-52	750	3,000	17.46	38.50	T80-26	400	2,000	18.60	41.00	T95-26B	200	800	17.87	39.40
T50-66B	1,000	5,000	16.65	36.70	T68-60	750	3,000	15.29	33.70	T80-40	400	2,000	18.23	40.20	T95-52B	200	800	17.87	39.40
T50-26C	800	4,000	20.50	45.20	T68-63	750	3,000	15.15	33.40	T80-52	400	2,000	18.23	40.20	T106-0	70	700	7.67	16.90
T50-18D	750	3,000	15.69	34.60	T68-66	750	3,000	16.10	35.50	T80-60	400	2,000	15.97	35.20	T106-1	70	700	18.46	40.70
T50-26D	750	3,000	16.10	35.50	T68-2A	600	3,000	16.66	36.73	T80-63	400	2,000	15.69	34.60	T106-2	70	700	16.24	35.80
T50-52D	750	3,000	16.65	36.70	T68-3A	600	3,000	21.67	47.77	T80-66	400	2,000	16.69	36.80	T106-3	70	700	21.00	46.30
T51-0	500	2,000	6.71	14.80	T68-6A	600	3,000	16.51	36.40	T80-2B	250	1,250	12.45	27.45	T106-6	70	700	15.92	35.10
T51-6	500	2,000	13.58	29.94	T68-8A/90	600	3,000	21.67	47.77	T80-6B	250	1,250	12.20	26.89	T106-7	70	700	16.25	35.83
T51-2B	750	3,000	13.11	28.90	T68-14A	600	3,000	17.29	38.11	T80-7B	250	1,250	12.62	27.82	T106-8/90	70	700	21.00	46.30
T51-6B	750	3,000	12.56	27.70	T68-17A	600	3,000	15.69	34.60	T80-8B/90	250	1,250	15.91	35.08	T106-10	70	700	15.38	33.91
T51-8C/90	1,000	4,000	17.69	39.00	T68-18A	600	3,000	22.09	48.70	T80-14B	250	1,250	12.85	28.32	T106-14	70	700	16.84	37.13
T51-18C	1,000	4,000	17.76	39.15	T68-26A	600	3,000	23.45	51.70	T80-18B	250	1,250	16.19	35.70	T106-17	70	700	12.90	28.45
T51-26C	1,000	4,000	19.05	42.00	T68-40A	600	3,000	22.77	50.20	T80-26B	250	1,250	17.84	39.33	T106-18	70	700	20.43	45.04
T51-52C	1,000	4,000	18.78	41.40	T68-45A	600	3,000	23.86	52.60	T80-40B	250	1,250	17.16	37.83	T106-26	70	700	22.02	48.54
T57-45	1,000	4,000	19.50	43.00	T68-52A	600	3,000	23.31	51.40	T80-45B	250	1,250	17.29	38.11	T106-30	70	700	19.32	42.59
T57-52	1,000	4,000	17.80	39.24	T68-60A	600	3,000	20.46	45.10	T80-52B	250	1,250	17.44	38.45	T106-34	70	700	19.73	43.50
T57-45A	750	3,000	18.75	41.34	T68-63A	600	3,000	20.05	44.20	T80-60B	250	1,250	15.06	33.20	T106-35	70	700	20.05	44.20
T57-52A	750	3,000	17.89	39.43	T68-66A	600	3,000	21.41	47.20	T80-63B	250	1,250	14.61	32.20	T106-40	70	700	22.02	48.54
T60-0	750	3,000	5.70	12.56	T68-2D	400	1,600	13.70	30.20	T80-66B	250	1,250	15.74	34.70	T106-45	70	700	23.18	51.11
T60-2	750	3,000	11.61	25.60	T68-6D	400	1,600	13.34	29.40	T80-2D	200	1,000	13.15	28.98	T106-52	70	700	22.40	49.38
T60-6	750	3,000	11.57	25.50	T68-8D/90	400	1,600	17.33	38.20	T80-6D	200	1,000	12.70	28.01	T106-60	70	700	19.89	43.85
T60-8/90	750	3,000	14.47	31.90	T68-14D	400	1,600	14.50	31.96	T80-8D/90	200	1,000	16.78	37.00	T106-63	70	700	19.57	43.15
T60-10	750	3,000	10.44	23.01	T68-17D	400	1,600	10.52	23.19	T80-14D	117	936	12.46	27.47	T106-66	70	700	20.81	45.88
T60-14	750	3,000	12.02	26.50	T68-18D	400	1,600	17.69	39.00	T80-17D	200	1,000	10.10	22.27	T106-18A	200	1,000	21.45	47.30
T60-17	750	3,000	9.16	20.20	T68-26D	400	1,600	18.78	41.40	T80-26D	200	1,000	17.87	39.40	T106-26A	200	1,000	21.64	47.70
T60-18	750	3,000	15.29	33.70	T68-52D	400	1,600	18.63	41.08	T80-40D	200	1,000	18.60	41.00	T106-40A	200	1,000	22.40	49.39
T60-26	750	3,000	16.37	36.10	T68-17E	250	1,250	11.00	24.25	T80-52D	200	1,000	18.33	40.40	T106-52A	200	1,000	22.32	49.20
T60-45	750	3,000	16.37	36.09	T69-45	400	1,600	20.24	44.62	T90-8/90	250	1,000	15.97	35.20	T106-66A	200	1,000	21.41	47.20
T60-52	750	3,000	16.24	35.80	T72-0	500	2,000	7.35	16.20	T90-18	250	1,000	15.97	35.20	T106-2B	70	560	16.87	37.20
T60-60	750	3,000	14.20	31.30	T72-2	500	2,000	15.51	34.20	T90-26	250	1,000	17.33	38.20	T106-6B	70	560	16.62	36.64
T60-63	750	3,000	13.72	30.25	T72-6	500	2,000	15.13	33.36	T90-52	250	1,000	17.24	38.00	T106-10B	70	560	15.73	34.68
T60-66	750	3,000	14.88	32.80	T72-7	500	2,000	15.13	33.36	T90-60	250	1,000	15.38	33.90	T106-17B	70	560	13.26	29.23

P/N	Min. Pack Qty (bag or board)	Full Box pcs.	Ship Weight per box (kg)	Ship Weight per box (lb)
T106-18B	70	560	22.59	49.80
T106-26B	70	560	22.64	49.91
T106-34B	70	560	20.71	45.65
T106-40B	70	560	23.10	50.92
T106-52B	70	560	23.15	51.03
T106-60B	70	560	20.68	45.60
T106-63B	70	560	20.35	44.87
T106-66B	70	560	21.65	47.73
T124-26	50	700	19.38	42.73
T130-0	50	500	7.57	16.70
T130-2	50	500	15.97	35.20
T130-3	50	500	19.94	43.95
T130-6	50	500	15.51	34.20
T130-7	50	500	15.51	34.20
T130-8/90	50	500	20.16	44.45
T130-10	50	500	14.80	32.62
T130-14	50	500	16.56	36.50
T130-15	50	500	19.14	42.20
T130-17	50	500	12.42	27.38
T130-18	50	500	19.89	43.85
T130-26	50	500	21.48	47.35
T130-30	50	500	18.91	41.70
T130-34	50	500	19.53	43.05
T130-45	50	500	22.36	49.30
T130-52	50	500	22.23	49.00
T130-60	50	500	19.23	42.40
T130-63	50	500	18.94	41.75
T130-66	50	500	20.12	44.35
T130-26A	150	600	14.33	31.60
T130-40A	150	600	14.20	31.30
T130-52A	150	600	14.15	31.19
T131-6	50	500	18.38	40.51
T131-8/90	50	500	23.68	52.20
T131-18	50	500	23.45	51.70
T131-26	50	500	25.49	56.20
T131-34	50	500	23.77	52.40
T131-35	50	500	24.13	53.20
T131-40	50	500	24.81	54.70
T131-52	50	500	25.38	55.95
T131-63	50	500	21.57	47.55
T132-26	50	500	25.27	55.70
T132-52	50	500	24.36	53.70
T141-8/90	40	400	17.59	38.79
T141-26	40	400	18.96	41.80
T141-52	40	400	18.78	41.40
T150-2	35	350	15.53	34.24
T150-6	35	350	15.44	34.05
T150-18	35	350	21.51	47.42
T150-26	35	350	22.32	49.21
T150-30	35	350	18.46	40.70
T150-52	35	350	22.11	48.75
T150-60	35	350	19.41	42.80
T150-63	35	350	19.05	42.00
T150-66	35	350	20.21	44.55
T150-26A	35	420	19.76	43.56
T157-0	30	240	6.78	14.94
T157-1	30	240	17.22	37.96
T157-2	30	240	14.50	31.96
T157-6	30	240	14.06	31.00
T157-7	30	240	14.00	30.86
T157-8/90	30	240	17.87	39.40
T157-10	30	240	13.52	29.80
T157-14	30	240	15.04	33.16
T157-15	30	240	17.54	38.68
T157-17	30	240	11.11	24.49
T157-18	30	240	17.87	39.40
T157-26	30	240	18.96	41.80
T157-30	30	240	17.22	37.96
T157-34	30	240	17.50	38.58
T157-35	30	240	17.44	38.44
T157-40	30	240	19.38	42.73
T157-52	30	240	19.67	43.36
T157-60	30	240	17.33	38.20
T157-63	30	240	16.97	37.41
T157-66	30	240	17.98	39.64
T157-26B	30	180	18.63	41.08
T175-2	20	140	11.67	25.72
T175-6	20	140	11.54	25.44
T175-8/90	20	140	14.84	32.72
T175-18	20	140	15.08	33.24
T175-26	20	140	15.48	34.12
T175-52	20	140	15.73	34.68
T175-60	20	140	14.27	31.46
T175-66	20	140	14.91	32.86
T184-0	20	140	7.59	16.74
T184-2	20	140	16.64	36.68
T184-3	20	140	20.79	45.83
T184-6	20	140	15.84	34.92
T184-8/90	20	140	20.79	45.83
T184-10	20	140	14.71	32.44
T184-14	20	140	16.87	37.20
T184-15	20	140	18.99	41.86
T184-17	20	140	12.54	27.65
T184-18	20	140	20.79	45.83
T184-26	20	140	22.08	48.68
T184-30	20	140	18.97	41.82
T184-34	20	140	20.18	44.48
T184-35	20	140	19.99	44.06
T184-40	20	140	22.14	48.82
T184-52	20	140	22.14	48.82
T184-60	20	140	19.54	43.08
T184-63	20	140	19.22	42.38
T184-66	20	140	20.43	45.04
T200-2	15	120	11.07	24.40
T200-6	15	120	10.80	23.80
T200-7	15	120	10.80	23.80
T200-8/90	15	120	14.28	31.48
T200-18	15	120	14.29	31.51
T200-26	15	120	14.77	32.56
T200-34	15	120	13.53	29.84
T200-52	15	120	14.71	32.44
T200-60	15	120	13.46	29.68
T200-66	15	120	14.06	31.00
T200-2B	15	75	12.47	27.50
T200-8B/90	15	75	15.46	34.08
T200-18B	15	75	16.00	35.27
T200-26B	15	75	16.44	36.25
T200-35B	15	75	15.48	34.14
T200-40B	15	75	16.31	35.95
T200-52B	15	75	16.20	35.73
T200-60B	15	75	15.22	33.55
T200-66B	15	75	15.90	35.05
T200-26C	15	105	18.20	40.12
T201-8/90	15	90	21.02	46.35
T201-18	15	90	21.02	46.35
T201-26	15	90	21.82	48.10
T201-40	15	90	22.24	49.03
T201-52	15	90	22.24	49.03
T224-26C	15	90	22.00	48.51
T224-52C	15	90	21.71	47.86
T225-2	15	120	13.79	30.40
T225-6	15	120	13.03	28.72
T225-8/90	15	120	17.75	39.13
T225-18	15	120	17.75	39.13
T225-26	15	120	18.63	41.08
T225-30	15	120	16.13	35.56
T225-34	15	120	16.91	37.28
T225-35	15	120	17.16	37.84
T225-40	15	120	18.16	40.03
T225-52	15	120	18.85	41.56
T225-60	15	120	16.67	36.76
T225-63	15	120	16.42	36.20
T225-66	15	120	17.44	38.44
T225-2B	12	60	12.76	28.12
T225-6B	12	60	12.02	26.50
T225-14B	12	60	13.22	29.14
T225-26B	12	60	17.35	38.26
T225-34B	12	60	14.50	31.96
T225-52B	12	60	16.78	37.00
T225-60B	12	60	15.31	33.76
T225-66B	12	60	16.02	35.32
T249-26	9	45	18.07	39.83
T249-34	9	45	16.00	35.28
T249-52	9	45	17.94	39.55
T250-2	9	45	14.18	31.27
T250-8/90	9	45	18.05	39.80
T250-14	9	45	14.71	32.44
T250-15	9	45	16.82	37.09
T250-18	9	45	18.06	39.82
T250-26	9	45	19.49	42.97
T250-34	9	45	16.96	37.39
T250-52	9	45	19.37	42.70
T250-60	9	45	17.31	38.16
T250-61	9	45	17.31	38.16
T250-63	9	45	17.02	37.53
T250-66	9	45	18.08	39.87
T250-8A/90	9	81	16.33	36.01
T250-52A	9	81	17.52	38.62
T250-61A	9	81	15.66	34.52
T270-40D	9	45	20.98	46.26
T281-40A	9	63	21.57	47.56
T282-26	6	30	12.50	27.56
T300-0	6	54	5.04	11.12
T300-2	6	54	10.80	23.80
T300-6	6	54	10.10	22.26
T300-8/90	6	54	13.12	28.93
T300-18	6	54	13.12	28.93
T300-26	6	54	14.05	30.98
T300-30	6	54	12.12	26.72
T300-34	6	54	12.40	27.33
T300-35	6	54	12.58	27.74
T300-52	6	54	13.96	30.77
T300-60	6	54	12.36	27.26
T300-61	6	54	12.39	27.31
T300-66	6	54	12.90	28.44
T300-26C	6	36	14.17	31.25
T300-2D	6	30	11.88	26.20
T300-8D/90	6	30	14.47	31.90
T300-14D	6	30	12.32	27.16
T300-18D	6	30	14.52	32.00
T300-26D	6	30	15.69	34.60
T300-30D	6	30	13.39	29.52
T300-34D	6	30	13.70	30.19
T300-35D	6	30	13.70	30.19

TEL (714) 970-9400 | FAX (714) 970-0400

P/N	Min. Pack Qty (bag or board)	Full Box pcs.	Ship Weight per box (kg)	Ship Weight per box (lb)
T300-40D	6	30	15.33	33.81
T300-52D	6	30	15.40	33.95
T300-60D	6	30	13.69	30.19
T300-63D	6	30	13.48	29.71
T353-40B	5	25	18.34	40.43
T355-26	5	25	17.19	37.89
T355-26A	5	25	17.10	37.70
T355-26D	5	20	19.41	42.80
T400-0	3	21	5.07	11.19
T400-2	3	21	10.45	23.03
T400-6	3	21	10.17	22.42
T400-8/90	3	21	13.14	28.96
T400-14	3	21	10.64	23.45
T400-18	3	21	13.14	28.96
T400-26	3	21	14.15	31.19
T400-30	3	21	12.21	26.91
T400-34	3	21	12.91	28.47
T400-35	3	21	13.10	28.89
T400-40	3	21	13.81	30.44
T400-52	3	21	13.81	30.44
T400-60	3	21	12.45	27.44
T400-66	3	21	13.01	28.68
T400-26B	3	15	15.37	33.88
T400-35B	3	15	14.22	31.36
T400-0D	3	12	5.62	12.39
T400-2D	3	12	11.80	26.01
T400-6D	3	12	11.40	25.13
T400-14D	3	12	12.01	26.49
T400-17D	3	12	9.09	20.03
T400-26D	3	12	15.76	34.74
T400-30D	3	12	13.71	30.23
T400-34D	3	12	14.13	31.16
T400-40D	3	12	15.58	34.34
T400-52D	3	12	15.64	34.47
T400-60D	3	12	15.57	34.32
T400-63D	3	12	13.72	30.24
T400-66D	3	12	14.57	32.12
T520-2	2	12	11.80	26.01
T520-26	2	12	15.28	33.68
T520-30	2	12	13.03	28.73
T520-35	2	12	13.64	30.06
T520-40	2	12	15.10	33.28
T520-52	2	12	15.04	33.15
T520-63	2	12	13.91	30.66
T520-66	2	12	14.77	32.56
T520-30D	2	6	13.03	28.73
T520-34D	2	6	13.87	30.58
T520-35D	2	6	13.63	30.06
T520-40D	2	6	15.13	33.35
T650-2	1	2	8.38	18.48
T650-8/90	1	2	10.75	23.69
T650-14	1	2	8.80	19.40
T650-26	1	2	11.48	25.32
T650-30	1	2	9.93	21.90
T650-34	1	2	10.16	22.39
T650-35	1	2	10.30	22.71
T650-52	1	2	11.34	24.99
T650-63	1	2	10.10	22.27
T650-66	1	2	10.71	23.61
E49-2	2,500	10,000	8.26	18.20
E49-8	2,500	10,000	10.52	23.20
E49-18	2,500	10,000	10.52	23.20
E49-26	2,500	10,000	10.98	24.20
E49-52	2,500	10,000	10.98	24.20
E49-66	2,500	10,000	10.52	23.20
E49-70	2,500	10,000	11.88	26.20
E50-26	400	8,000	12.67	27.93
E50-52	400	8,000	12.67	27.93
E65-8	200	3,000	9.03	19.90
E65-26	200	3,000	9.71	21.41
E65-52	200	3,000	9.59	21.13
E65-66	200	3,000	8.35	18.40
E75-2	250	4,000	10.25	22.60
E75-8	250	4,000	12.97	28.60
E75-18	250	4,000	13.34	29.40
E75-26	250	4,000	14.24	31.40
E75-40	250	4,000	13.88	30.60
E75-52	250	4,000	14.06	31.00
E80-8	175	2,450	13.47	29.70
E80-26	175	2,450	14.39	31.72
E80-45	175	2,450	14.56	32.09
E80-52	175	2,450	14.05	30.97
E99-2	110	1,320	11.87	26.17
E99-8	110	1,320	15.13	33.36
E99-26	110	1,320	16.00	35.28
E99-45	110	1,320	15.78	34.80
E99-52	110	1,320	15.78	34.80
E100-2	125	2,000	11.16	24.60
E100-8	125	2,000	14.24	31.40
E100-18	125	2,000	14.24	31.40
E100-26	125	2,000	15.24	33.60
E100-52	125	2,000	14.97	33.00
E100-60	125	2,000	13.43	29.60
E100-70	125	2,000	15.91	35.08
E137-2	100	800	14.06	31.00
E137-8	100	800	18.05	39.80
E137-18	100	800	18.05	39.80
E137-26	100	800	19.65	43.32
E137-52	100	800	19.14	42.20
E137-60	100	800	17.29	38.12
E137-66	100	800	18.05	39.80
E162-8	50	300	14.06	31.00
E162-18	50	300	14.06	30.99
E162-26	50	300	15.42	34.00
E162-52	50	300	15.15	33.40
E162-60	50	300	13.52	29.80
E162-66	50	300	13.93	30.70
E168-2	40	200	10.07	22.20
E168-8	40	200	12.79	28.20
E168-18	40	200	12.79	28.20
E168-26	40	200	13.88	30.60
E168-52	40	200	13.70	30.20
E168-60	40	200	12.16	26.80
E168-66	40	200	12.79	28.20
E168-2A	30	150	9.98	22.00
E168-8A	30	150	12.36	27.25
E168-18A	30	150	12.58	27.73
E168-26A	30	150	13.79	30.40
E168-52A	30	150	13.45	29.65
E168-60A	30	150	12.09	26.65
E168-66A	30	150	12.56	27.70
E187-8	40	240	19.49	42.96
E187-18	40	240	19.83	43.72
E187-26	40	240	21.36	47.08
E187-52	40	240	21.14	46.60
E220-2	20	80	10.65	23.48
E220-8	20	80	12.83	28.28
E220-18	20	80	12.61	27.80
E220-26	20	80	14.28	31.48
E220-34	20	80	12.65	27.88
E220-40	20	80	13.92	30.68
E220-52	20	80	14.13	31.16
E220-60	20	80	12.61	27.80
E220-66	20	80	12.97	28.60
E220-26/ G020	20	80	14.28	31.48
E220-52/ G020	20	80	14.13	31.16
E225-2	22	110	12.47	27.50
E225-8	22	110	15.57	34.32
E225-18	22	110	15.72	34.65
E225-26	22	110	17.16	37.84
E225-52	22	110	16.96	37.40
E305-2	16	48	13.28	29.27
E305-8	16	48	16.28	35.90
E305-18	16	48	16.12	35.53
E305-26	16	48	16.36	36.06
E305-30	16	48	15.16	33.42
E305-34	16	48	15.64	34.48
E305-52	16	48	17.08	37.65
E305-60	16	48	15.13	33.35
E305-66	16	48	15.91	35.08
E305-26/ G050	16	48	16.24	35.80
E305-52/ G050	16	48	17.08	37.65
E305-2A	12	36	13.28	29.27
E305-26A	12	36	16.84	37.12
E305-40A	12	36	16.84	37.12
E305-52A	12	36	17.02	37.52
E305-60A	12	36	15.01	33.09
E305-66A	12	36	15.37	33.88
E305-26A/ G050	12	36	16.92	37.30
E305-52A/ G050	12	36	16.61	36.62
E315-52	18	54	13.86	30.55
E315-66	18	54	13.42	29.58
E315-52A	14	42	13.38	29.50
E315-66A	14	42	12.66	27.90
E315-52B	12	36	13.73	30.28
E315-52D	8	24	11.99	26.44
E450-2	6	18	13.89	30.61
E450-26	6	18	17.25	38.02
E450-30	6	18	15.67	34.54
E450-34	6	18	15.78	34.78
E450-40	6	18	17.74	39.11
E450-52	6	18	17.74	39.10
E450-60	6	18	15.61	34.42
E450-66	6	18	15.37	33.88
E610-2	2	6	13.29	29.29
E610-26	2	6	17.03	37.54
E610-34	2	6	15.12	33.34
E610-63	2	6	14.88	32.80
E610-66	2	6	15.87	34.98
E827-2	1	2	12.97	28.60
E827-26	1	2	17.33	38.20
E827-30	1	2	16.06	35.40
E827-35	1	2	16.78	37.00
E827-60	1	2	16.42	36.20
E827-63	1	2	15.88	35.00
HS135-26	500	4,000	14.61	32.20
HS300-8	100	1,200	18.42	40.60
HS300-26	100	1,200	19.50	43.00
HS300-52	100	1,200	19.50	43.00
HS300-8A	75	900	15.69	34.60
HS300-26A	75	900	18.35	40.45
HS300-52A	75	900	18.35	40.45

P/N	Min. Pack Qty (bag or board)	Full Box pcs.	Ship Weight per box (kg)	Ship Weight per box (lb)
HS300-8B	50	600	12.97	28.60
HS300-26B	50	600	14.61	32.20
HS300-52B	50	600	14.20	31.30
HS300-8C	50	600	15.01	33.10
HS300-26C	50	600	16.89	37.24
HS300-52C	50	600	16.65	36.70
HS300-66C	50	600	15.56	34.30
HS400-26	30	300	16.24	35.80
HS400-26A	20	200	14.42	31.80
HS400-26B	20	200	17.06	37.60
HS400-26C	20	200	20.05	44.20
HS400-52C	20	200	20.05	44.20
HS465-26	30	360	20.59	45.40
HS670-26/10	30	270	18.39	40.54
BLN814-0/94	20,000	200,000	6.44	14.20
BLN814-2/94	20,000	200,000	12.79	28.20
BLN814-6/94	20,000	200,000	12.79	28.20
BLN814-8/94	20,000	200,000	16.42	36.20
BLN814-10/94	20,000	200,000	11.88	26.20
BLN814-17/94	20,000	200,000	11.88	26.20
BLN814-0A/94	20,000	200,000	5.72	12.60
BLN814-8A/94	20,000	200,000	14.61	32.20
BLN814-10A/94	5,000	200,000	10.07	22.20
BLN814-0B/94	5,000	200,000	5.53	12.20
BLN814-10B/94A	5,000	200,000	8.26	18.20
BLN1728-0/94	1,000	8,000	6.11	13.48
BLN1728-2/94	1,000	8,000	7.13	15.72
BLN1728-6/94	1,000	8,000	6.08	13.40
BLN1728-8/94	1,000	8,000	7.89	17.40
BLN1728-10/94	1,000	8,000	5.72	12.60
BLN1728-2A/94	2,500	20,000	7.35	16.20
BLN1728-6A/94	2,500	20,000	7.35	16.20
BLN1728-8A/94	2,500	20,000	9.62	21.20
BLN1728-10A/94	2,500	20,000	7.35	16.20
P22-106	5,000	100,000	1.45	3.20
P22-117	5,000	100,000	1.45	3.20
P23-100	5,000	100,000	1.45	3.20
P23-117	5,000	100,000	1.45	3.20
P24-100	5,000	100,000	1.45	3.20
P24-106	5,000	100,000	1.63	3.60
P24-107	5,000	100,000	1.63	3.60
P24-117	5,000	100,000	1.45	3.20
P25-100	5,000	100,000	1.45	3.20
P25-101	5,000	100,000	2.36	5.20
P25-102	5,000	100,000	1.95	4.30
P25-106	5,000	100,000	1.95	4.30
P25-108	5,000	100,000	2.13	4.70
P25-110	5,000	100,000	1.72	3.80
P25-117	5,000	100,000	1.68	3.70
P33-100	5,000	100,000	2.09	4.60
P33-102	5,000	100,000	2.22	4.90
P33-106	5,000	100,000	2.13	4.70
P33-108	5,000	100,000	2.40	5.30
P33-110	5,000	100,000	2.04	4.50
P33-117	5,000	100,000	1.86	4.10
P48-100	5,000	100,000	3.40	7.50
P48-103	5,000	100,000	7.80	17.20
P48-106	5,000	100,000	6.85	15.10
P48-110	5,000	100,000	6.26	13.80
P48-117	5,000	100,000	5.53	12.20
P68-100	5,000	100,000	10.07	22.20
P68-106	5,000	100,000	15.10	33.30
P68-108	5,000	100,000	18.23	40.20
P68-110	5,000	100,000	12.79	28.20
P68-117	5,000	100,000	10.07	22.20
P810-210	5,000	50,000	13.74	30.30
P816-340	5,000	20,000	14.61	32.20
P825-110	2,000	12,000	9.98	22.00
P825-117	4,000	16,000	11.52	25.40
P825-108	4,000	16,000	17.33	38.20
P825-140	3,000	12,000	13.79	30.41
P825-142	4,000	16,000	17.78	39.19
P912-102	2,500	25,000	13.35	29.42
P1216-140	3,000	12,000	17.29	38.12
P1224-100	2,000	8,000	7.53	16.60
P1224-101	2,000	8,000	16.60	36.60
P1224-102	2,000	8,000	14.42	31.80
P1224-103	2,000	8,000	17.69	39.00
P1224-108	2,000	8,000	17.69	39.00
P1224-117	2,000	8,000	13.84	30.52
P1224-140	2,000	8,000	17.29	38.11
P1224-152	2,000	8,000	17.83	39.30
P1224-340/9	2,000	8,000	17.29	38.11
P1234-110	216	3,456	8.21	18.10
P1338-240	1,000	5,000	19.82	43.70
P1621-140	1,500	6,000	21.82	48.10
P1624-102	1,500	6,000	18.38	40.52
P1624-140	1,500	6,000	23.04	50.80
P1624-240	1,500	6,000	23.15	51.05
P1624-340/9	1,500	6,000	24.13	53.20
P1628-340/9	1,000	4,000	19.50	43.00
P1632-102	1,000	4,000	16.45	36.27
P1632-140	1,000	4,000	20.05	44.20
P1632-240	1,000	4,000	20.96	46.20
P1632-340/9	1,000	4,000	23.50	51.80
P1640-201	750	3,000	16.92	37.30
P1640-206	750	3,000	15.29	33.70
P1640-240	750	3,000	20.05	44.20
P1648-202	99	1,188	8.16	18.00
P1648-210	100	1,200	7.86	17.32
P2024-240	750	3,000	17.75	39.13
P2028-102	500	2,500	13.96	30.77
P2032-240	500	2,500	19.61	43.23
P2040-240	400	1,600	15.89	35.03
P2060-240	80	800	12.17	26.82
P2432-202	500	2,000	18.50	40.78
P2432-240	500	2,000	22.43	49.44
P2440-106	75	900	10.38	22.89
P2440-201	350	1,750	21.70	47.85
P2440-202	350	1,750	20.14	44.40
P2440-218	350	1,750	23.06	50.83
P2440-240	350	1,750	24.44	53.87
P2448-202	350	1,400	19.34	42.63
P2448-238	300	1,500	28.62	63.10
P2448-240	300	900	15.43	34.03
P2456-240	250	750	15.06	33.20
P3232-106	250	1,000	16.42	36.20
P3240-102	200	800	16.61	36.61
P3240-108	200	800	19.47	42.93
P3240-117	200	800	12.78	28.18
P3240-140	200	800	20.11	44.34
P3248-140	150	600	18.20	40.12
P3252-140	49	343	11.62	25.63
P3256-102	51	510	14.93	32.91
P3256-140	51	510	18.06	39.81
P3264-102	100	500	16.61	36.61
P3264-107	100	500	16.29	35.91
P3264-140	100	500	20.11	44.34
P4040-102	150	600	19.31	42.58
P4040-126	150	600	25.10	55.33
P4040-140	150	600	23.43	51.66
P4048-140	100	400	18.95	41.78
P4054-140	30	210	11.67	25.72
P4840-102	75	300	14.21	31.33
P4848-102	33	198	11.46	25.27
P4848-140	75	300	20.41	45.01
P4876-126	50	200	21.38	47.14
P4876-140	50	200	22.77	50.20
P6432-140	50	250	20.21	44.55
P6448-102	30	150	15.12	33.33
P6464-126	25	100	17.24	38.00
P6464-140	25	100	16.36	36.08
P10032-118	16	80	16.59	36.58
P14432-102	9	45	15.36	33.87
P19236-126	6	24	23.68	52.22
P19248-102	4	12	11.61	25.60

TEL (714) 970-9400 | FAX (714) 970-0400

Micrometals Alloy Powder Cores

Our Newest Alloy Offerings

Micrometals continues to lead the industry in new shapes and material formulations to help support advances in technology and emerging applications in electric vehicle systems, high frequency power supplies, 5G telecommunications and renewable energy conversion systems. All of our new materials are represented in our inductor design software to allow total solution optimization for your design challenges. *Please be sure to register for our FREE Inductor Design software at* www.micrometals.com

Please request our latest ***Alloy Powder Product Catalog*** to see our entire offering of Alloy Powder Cores.

New Alloy Materials

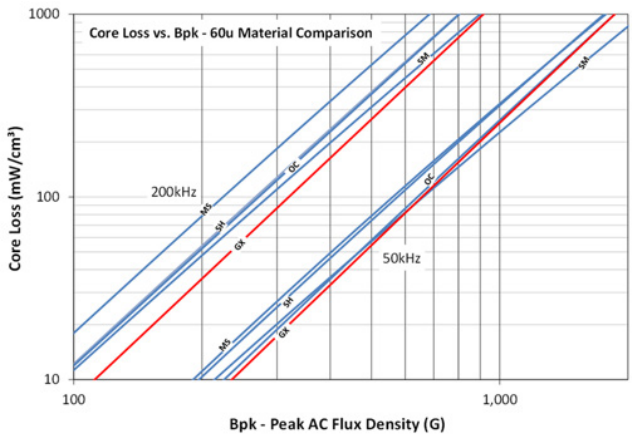
GX High Performance Alloy – Delivers exceptional saturation performance but with core losses better than Sendust!!

Micrometals new GX™ High Performance Alloy Powder has been specifically formulated to optimize inductor performance parameters for demanding power applications. This new material exhibits very low core losses while providing exceptional DC Bias for advanced power conversion applications, including solar power inverters, on-board EV chargers and high performance power conversion applications.

The GX cores are available in 125µ and 60µ permeability materials in toroid shapes from 10.1mm dia. to 50.8mm dia. Special sizes and shapes are also available.

This new GX material delivers that same reliability and consistency, but with higher performance for engineers looking enhance DC Bias performance for existing Hi-Flux designs and reduce losses for existing Sendust designs. GX is an excellent choice for boost inductors, DC/DC converters running at or near Critical Conduction Mode, and other applications that require an optimization of inductor size, cost and efficiency.

The GX materials have been incorporated into the *Micrometals Online Inductor Design Tool*, for facilitating material selection and design optimization - https://www.micrometals.com/design-and-applications/design-tools/



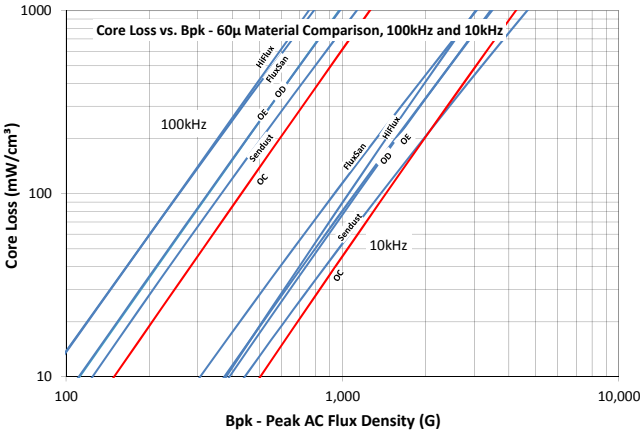
Optilloy™ Optimized Alloys

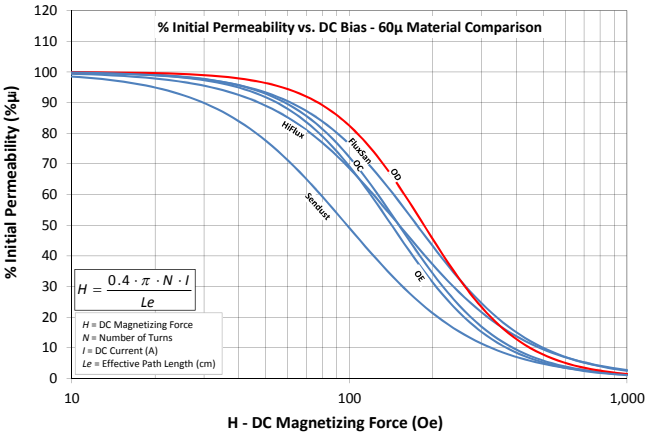
Optilloy materials are unique Micrometals hybrid formulations of iron, silicon, aluminum and nickel that deliver the highest level of performance for specific design traits without increasing cost/performance in areas that are not critical to the application. They are available in toroid shapes up to 154mm.

- **OD Material** – Provides optimized DC Bias while keeping cost and core loss at nominal levels. OD material DC bias is similar to Hi-Flux materials but at a lower cost and lower loss.

- **OC Material** – Provides optimized Core Loss while keeping costs and DC bias at nominal levels. OC material has core losses similar to Sendust but with improved DC bias.

- **OE Material** – An economical option to Sendust that has core loss and DC bias at nominal levels. OE material delivers exceptional value and cost similar to Sendust but with improved DC bias.





New Alloy Material Shapes

EQ Shaped Cores

EQ cores are ideally suited for surface mount applications and feature a round center post that readily accepts helical flat wire coils, or bobbins with round wire. Micrometals offers EQ cores in six industry standard geometries from 20mm to 50mm, and three material formulations of Sendust (MS), Hi-Flux™ (HF) and FluxSan™ (FS - Iron Silicon) with 26, 40 or 60 permeability values. Custom or modified EQ cores can also be designed for your specific application.

PQ Shaped Cores

PQ cores are ideal for transformers in switch-mode power supplies and can be used in both standard wire-wound transformers in AC-DC and DC-DC converters and for planar transformers. The PQ core round center leg and larger outer surface requires less windings for the same resulting inductance as compared to EQ cores. Custom or modified PQ cores can also be designed for your specific application.

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Coating Guide

Core Finish

All standard toroidal cores, composite toroid cores, rectangular toroidal cores and balun cores are provided with a protective coating. In addition a number of other geometries will come standard with coating on non-mating surfaces. The geometries with protective coating on nonmating surfaces include bus bar cores, HC/IC and HD/ID cores. Please refer to the individual part datasheet for information if core finish is included as well as coating type.

Toroid sizes with outside diameter of 0.20in./5.1mm ("T20" part prefix) and smaller are typically coated under vacuum with Parylene C. The larger cores are coated with a two color epoxy finish with colors being used to identify material. It is important to note Parylene C is not compliant with European Union Directive 2002/95/EC on Restriction of Hazardous Substances (ROHS) for Halogens. It may be possible to substitute to RoHS compliant parylene coating, please contact the factory or local representative for further details.

The epoxy coated parts are RoHS compliant and UL approved for Flame Class UL94V-0 per file #E140098 (S). A copy of the Yellow card can be downloaded or located on the UL website.

All finishes have a minimum dielectric strength of 500 Vrms at 60 Hz. Toroidal cores can be double or triple coated for greater dielectric strength. Plastic core caps are available for "T400" and "T520" part series for very heavy gauge wire or when greater dielectric strength is required. Parts can also be supplied without coating. Contact local sales assistant for further details.

All finishes resist most cleaning solvents, however, extended exposure to certain solvents may have detrimental effects. All coatings will tolerate elevated temperatures for a limited time for Reflow solder, IR or Vapor Phase soldering operations. The typical solder temperatures encountered are 200°C to 240°C for up to 25 seconds of exposure time. Parylene coated parts are most susceptible to damage if exposed too long to elevated temperature. The coating can soften and possibly "blister" under worst case exposure. The epoxy coated parts will tolerate solder temperatures for up to 2 minutes and not suffer any long-term damage.

Uncoated cores may be subject to surface oxidation. Micrometals recommends that all uncoated cores should be sheltered from high humidity or moisture. It is suggested that bare cores are handled with gloves in order to avoid formation of surface blemishes. Surface oxidation or discolorations are cosmetic and will not affect core performance.

Micrometals iron powder cores have an organic content and undergo thermal aging. When cores are exposed to or generate elevated temperatures, a permanent decrease in both inductance and quality factor (Q) will gradually occur. The extent of these changes is highly dependent on time, temperature, core size, frequency, and flux density. It is essential that these properties are considered in any design operating at or above 75ºC. Iron powder cores tolerate temperatures down to -65ºC with no permanent effects.

In high power applications where core loss is contributing to the total temperature, a decrease in quality factor will translate into an increase in eddy current losses which will further heat the core and can lead to thermal runaway. Designs where core loss exceeds copper loss should be avoided. Hysteresis losses are unaffected by the thermal aging process.

A thermal aging predictor has been incorporated into our inductor design software. Please do not hesitate to contact our application engineers for specific application questions and free design consultation at Applications@Micrometals.com.

Quality Certifications

ISO-IATF16949

Micrometals is dedicated to manufacturing the highest quality powder cores and meeting or exceeding customer's expectations. Our current ISO and IATF Certificates available for download at https://www.micrometals.com/company/quality-certifications

US ISO 9001

China ISO 9001

Shenzhen IATF 16949

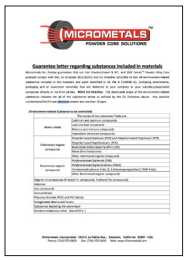
China ISO 14001

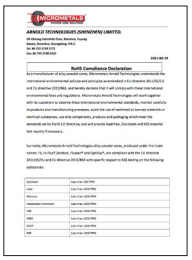
Shenzhen ISO 9001

Shenzhen ISO 14001

RoHS

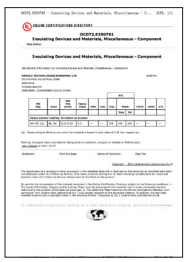
Micrometals is committed to managing environmental and safety issues as an integral part of our business goal. In addition to actively pursuing safe working conditions, Micrometals has installed programs to ensure continued diligence toward this objective. Micrometals is a determined advocate for a clean environment and complies with local and national pollution controls. Additionally, our powder core products are currently compliant with European Union Directives 2002/95/EC for the reduction of hazardous substances (RoHS). RoHS compliance statement and Halogen Free statement are available for download at https://www.micrometals.com/company/quality-certifications


Micrometals Iron Powder RoHS 3.0

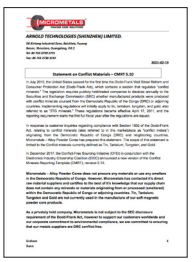

Micrometals Alloy Powder RoHS 3.0

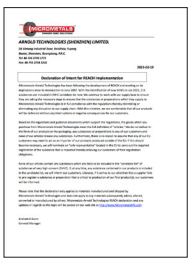
REACH and UL

Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) for European Union Regulation, declaration of intent and Statement of Conflict Minerals for Dodd-Frank Wall Street Reform and Consumer Protection Act available for download at https://www.micrometals.com/company/quality-certifications


UL Cert


REACH Declaration - Iron Cores


Micrometals Alloy Powder - Conflict Minerals


Micrometals Alloy Powder - REACH Declaration

Micrometals USPTO Trademarks

Mix 18, Mix 19 Product Trademark

Goods and Services	IC 009. US 021 023 026 036 038. G & S: toroid-shaped iron powder cores used in electrical systems. FIRST USE: 19880100. FIRST USE IN COMMERCE: 19880200
Mark Drawing Code	(2) DESIGN ONLY
Design Search Code	26.19.25 - Geometric solids other than spheres, cylinders, cones, cube, prisms or pyramids
Serial Number	75684111
Filing Date	April 16, 1999
Current Basis	1A
Original Filing Basis	1A
Published for Opposition	November 27, 2001
Registration Number	2538877
Registration Date	February 19, 2002
Owner	(REGISTRANT) Micrometals, Inc. CORPORATION CALIFORNIA 5615 E. La Palma Avenue Anaheim CALIFORNIA 92807
Attorney of Record	Lorraine Linford
Prior Registrations	2193034
Description of Mark	The mark consists of the colors **green** and **red** used on the outer surface of the goods. The matter shown in the drawing in broken lines serves only to show positioning of the mark, and no claim is made to it. The drawing is lined for the colors green and red.
Type of Mark	TRADEMARK
Register	PRINCIPAL-2(F)
Affidavit Text	SECT 15. SECT 8 (6-YR). SECTION 8(10-YR) 20111206.
Renewal	1ST RENEWAL 20111206
Live/Dead Indicator	LIVE

Mix 52 Product Trademark

Goods and Services	IC 009. US 021 023 026 036 038. G & S: toroid-shaped iron powder cores used in electrical systems. FIRST USE: 19871000. FIRST USE IN COMMERCE: 19871100
Mark Drawing Code	(2) DESIGN ONLY
Design Search Code	14.03.25 - Brackets, fixture ; Hooks, Utility (hardware); Magnets ; Nozzles, hose
Serial Number	75684110
Filing Date	April 16, 1999
Current Basis	1A
Original Filing Basis	1A
Published for Opposition	January 1, 2002
Registration Number	2551509
Registration Date	March 26, 2002
Owner	(REGISTRANT) Micrometals, Inc. CORPORATION CALIFORNIA 5615 E. La Palma Avenue Anaheim CALIFORNIA 92807
Attorney of Record	Lorraine Linford
Prior Registrations	2193034
Description of Mark	The mark consists of the colors **green** and **blue** used on the outer surface of the goods. The matter shown in the drawing in broken lines serves only to show positioning of the mark and no claim is made to it. The drawing is lined for the colors green and blue.
Type of Mark	TRADEMARK
Register	PRINCIPAL-2(F)
Affidavit Text	SECT 15. SECT 8 (6-YR). SECTION 8(10-YR) 20111202.
Renewal	1ST RENEWAL 20111202
Live/Dead Indicator	LIVE

Mix 8 Product Trademark

Goods and Services	IC 009. US 021 023 026 036 038. G & S: toroid-shaped iron powder cores used in electrical systems. FIRST USE: 19790700. FIRST USE IN COMMERCE: 19790800
Mark Drawing Code	(2) DESIGN ONLY
Design Search Code	14.03.25 - Brackets, fixture ; Hooks, Utility (hardware) ; Magnets ; Nozzles, hose
Serial Number	75684013
Filing Date	April 16, 1999
Current Basis	1A
Original Filing Basis	1A
Published for Opposition	January 1, 2002
Registration Number	2551508
Registration Date	March 26, 2002
Owner	(REGISTRANT) Micrometals, Inc. CORPORATION CALIFORNIA 5615 E. La Palma Avenue Anaheim CALIFORNIA 92807
Attorney of Record	Lorraine Linford
Prior Registrations	2193034
Description of Mark	The mark consists of the colors **yellow** and **red** used on the outer surface of the goods. The matter shown in the drawing in broken lines serves only to show positioning of the mark, and no claim is made to it. The drawing is lined for the colors yellow and red.
Type of Mark	TRADEMARK
Register	PRINCIPAL-2(F)
Affidavit Text	SECT 15. SECT 8 (6-YR). SECTION 8(10-YR) 20111202.
Renewal	1ST RENEWAL 20111202
Live/Dead Indicator	LIVE

Mix 26 Product Trademark

Goods and Services	IC 009. US 021 023 026 036 038. G & S: toroid-shaped iron powder cores used in electrical systems. FIRST USE: 19740630. FIRST USE IN COMMERCE: 19740630
Mark Drawing Code	(2) DESIGN ONLY
Design Search Code	26.01.18 - Circles, three or more concentric; Concentric circles, three or more ; Three or more concentric circles 26.09.14 - Squares, three or more; Three or more squares 26.19.25 - Geometric solids other than spheres, cylinders, cones, cube, prisms or pyramids 29.05.08 - Yellow or gold (Multiple colors used on the entire goods) 29.05.09 - White (Multiple colors used on the entire goods)
Serial Number	75166131
Filing Date	September 16, 1996
Current Basis	1A
Original Filing Basis	1A
Published for Opposition	July 14, 1998
Registration Number	2193034
Registration Date	October 6, 1998
Owner	(REGISTRANT) Micrometals, Inc. CORPORATION CALIFORNIA 5615 E. La Palma Avenue Anaheim CALIFORNIA 92807
Attorney of Record	LORRAINE LINFORD
Description of Mark	The mark consists of the colors **white** and **yellow** used on the outer surface of the goods. The matter shown in the drawing in broken lines serves only to show positioning of the mark, and no claim is made to it. The drawing is lined for the color yellow.
Type of Mark	TRADEMARK
Register	PRINCIPAL-2(F)
Affidavit Text	SECT 15. SECT 8 (6-YR). SECTION 8(10-YR) 20180914.
Renewal	2ND RENEWAL 20180914
Live/Dead Indicator	LIVE

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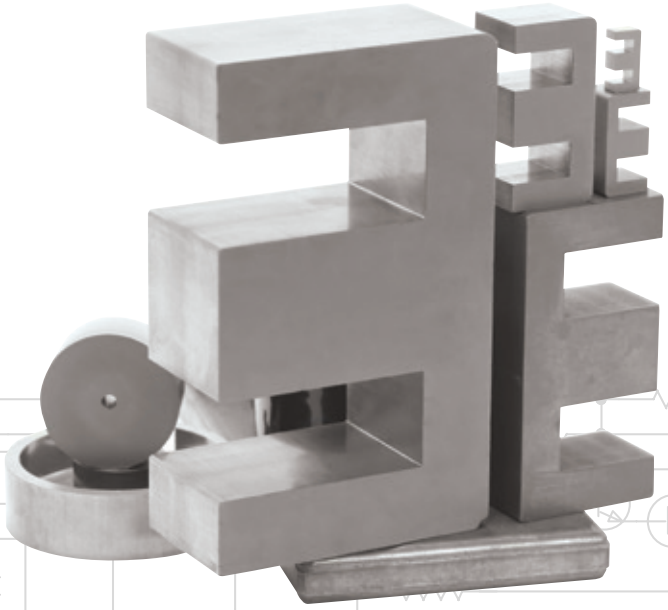
www.micrometals.com
sales@micrometals.com

MICROMETALS™

POWDER CORE SOLUTIONS



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