



Custom Manufactured Gapped Toroid Filter Cores for Aerospace, Commercial & Military Use

Producing precision gapped toroid filter cores presents many manufacturing and engineering challenges. For toroid filter cores used in aerospace applications, tight inductance specifications are compounded by stringent quality requirements and the need for 100% conforming product. In this case study, we overcame these challenges to economically produce toroid filter cores that were able to meet all applicable aerospace standards and the requirements of aerospace customers across the globe.



We specialize in developing solutions for difficult problems; in this case, we engineered and built a custom manufacturing process designed for the production of gapped toroid filter cores. It is built around tightly controlled processes for air-gapping single and multiple-cut toroids. Our efforts resulted in products that exhibit reduced variance in inductance over powder cores and ferrites, with greatly improved shock, vibration and thermal characteristics.

This tighter control over inductance provides substantially improved noise filtering and thermal stability which is critical for applications such as fly-by-wire control systems used in aircraft. Our proprietary gapping and manufacturing process allows us to precisely tune the air gap within the narrowest inductance tolerances, which we verify using highly accurate Wayne-Kerr inductance analyzers. These unique resources and processes allow us to manufacture gapped toroid filter cores in single-, half-, quad-, and eight-cut gapped toroids, which can be supplied bare, epoxy coated, or with nylon or aluminum cases.

If you are interested in learning more about these products or the processes we use to manufacture them, [contact](#) us today.

Gapped Toroid Filter Cores Case Study Highlights

Project Name & Description	Gapped Toroid Filter Cores
Capabilities Applied/Processes	<ul style="list-style-type: none"> • Precisely controlled core bonding, cutting, gapping and testing • Unique custom designed manufacturing equipment • Highly accurate Wayne-Kerr Inductance Analyzers for testing
Overall Part Dimensions	Highly variable custom sizes
Material Used	All currently available soft magnetic tape materials
Material Finish	Bare, epoxy coated, nylon or aluminum cased or custom cases
Industry for Use	Aerospace, Commercial & Military
In Process Testing/Inspection Performed	Inductance and other custom magnetic testing
Volume	From prototypes to mass production
Delivery/Turnaround Time	3 weeks from Engineering to delivery
Delivery Location	Worldwide
Standards Met	DFARS, ITAR, ISO 9001-2008, AS9102 FAI available