MANUFACTURING
TECHNOLOGY INSIGHTS

West Coast Magnetics: Refined Engineering for Futuristic Applications

Weyman Lundquist, CEO

> **Our engineers design magnetic components and filters, and test and match the inductive and capacitive components to specified power and frequency levels in order to create a design that meets the customer's requirements.**

West Coast Magnetics, with its engineering expertise and vast experience, plays an instrumental role in helping organizations from across the enterprise and military domains achieve their goals. As an engineering-centric firm, West Coast designs and manufactures custom and semi-custom multi- channel RF filter assemblies, RF filters, high power, and high-frequency SMPS inductors and transformers, high Q RF inductors, bonded coils, rotating transformers, and many other unique components. The company's assemblies and components end up as the fulcrum of the system that the clients are building as part of their innovation efforts.

West Coast aces the art and science of upgrading a filter assembly from operating at low power and single frequency to high power at multiple frequencies.

Its SMPS magnetic components, on the other hand, deliver increased power density, reliability, and isolation––at a reduced form factor and customized topology. What's more, West Coast has developed its own magnetic cores and bobbins that have high power density and high isolation for transformers. Such customization proves immensely beneficial for products built for sensitive and highly regulated environments such as in medical and military.

The US Navy, for instance, relies on West Coast's transformer design in their sonobuoys. This small buoy expendable sonar system has an improved power distribution mechanism, which is now implemented globally. West Coast has built high voltage, high-frequency step-up transformers used in resonant circuits to create plasma inside of gas and liquid chromatographic equipment used by the medical industry.

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The company is also playing a pivotal role in taking Google's ambitious autonomous car project forward by manufacturing specialized coils that are fit into the rotating transformers used to transmit power across the rotating interface to a LiDAR radar system sitting on top of the vehicle.

West Coast is led by Weyman Lundquist, the RF and power electronics industry veteran and CEO of the company, who has carefully built a team of experts who work closely with the clients and meet their every need. Before starting on a particular project, team West Coast requests clients for specifications, bills of materials, and requirements.

With a complete understanding of the project, the company's engineers begin designing, testing, and building the electrical parts with ultimate feasibility and circuit topology that meet mechanical, thermal, and electrical consumption requirements. West Coast uses ANSYS finite element modeling software to explore new design options with clients and then produce the components and assemblies with top-notch accuracy and detail. "Our engineers design magnetic components and test and match the inductive components for frequency and design that match the client's topology," states Lundquist. West Coast's internal engineers join forces with the clients' engineering department to successfully deliver efficient magnetic components and filter assemblies from initial development and prototyping to design completion and production.

As the demand for semiconductor and computer chips saw continuous rise in 2020, West Coast has grown its business by 30 percent. While most companies remained stagnant, West Coast has worked toward maintaining a clean and safe environment for all its employees in delivering innovative power electrical solutions to its clients.

By following all the CDC's required safety guidelines, West Coast has been able to cater to its most essential consumers, such as medical device and semiconductor processing equipment manufacturers. "We have had our full staff working under strict pandemic guidelines without a single documented case of COVID-19 transmission since we began operations after lockdown," says Lundquist.

Most recently, West Coast has expanded its operations to cover the entire 25,000 square feet of its facility and is hiring new staff for more optimized internal operations. To ensure the availability of materials to meet customer demands, West Coast is stocking a substantial amount of material to limit the supply chain risk to its customers.

With a focus on R&D, West Coast is currently working with New England Wire company and Professor Charles Sullivan at the Thayer School of Engineering at Dartmouth to study litz wire construction techniques with the goal of maximizing the Q of the wire and minimizing high frequency winding resistance.