

Fine Wire Coil Assemblies

Fine wire electromagnetic coils are crafted using ultra-thin insulated conductive wire that is tightly wound to create smaller, lighter, and more efficient components. These miniature coils are integral to applications requiring high sensitivity, low current, and precise performance within tight space constraints.

Benefits of Fine Wire Coils

Using fine wire in coil assemblies offers multiple performance and design advantages:

1. Maximized Coil Turns for Low Current

Fine wire enables more turns within the same volume, improving electromagnetic efficiency and allowing for greater current control over electrical characteristics.

2. Increased Sensitivity

In sensor and measurement applications, more coil turns amplify voltage response according to Faraday's law, enhancing detection of even the smallest magnetic field changes.

3. Designed Inductance and Response Time

Fine-wire coils offer higher inductance, making them ideal for applications where rapid current changes are not required, such as specific electric motors. This increased inductance can lead to slower response times, a design feature strategically leveraged to meet the specific demands of each application.

4. Compact Design and Greater Functionality

As electronics advance, miniaturization without sacrificing reliability is key. Fine wire, which can be as thin as 56 AWG (0.00065-inch diameter), allows for compact designs that still meet functional and dimensional requirements; perfect for space-constrained, high precision devices.

Overcoming Miniaturization Challenges

With technology evolving at lightning speed, precision in electronic manufacturing is not optional: it is a necessity. As products continue to shrink while demanding greater performance, components must be optimized for miniaturization. Producing miniature coils for industries that demand precision requires unmatched accuracy and consistency.

Fine wire winding is a highly technical and intricate process. The wires are very fragile, often thinner than human hair, which require precise tension control to avoid breakage, defects, or inconsistency.

Why Choose Able Coil?

» Expertise and Experience

With over five decades of experience, Able Coil & Electronics is a trusted USA manufacturer of custom electromagnetic coils and fine wire assemblies for the most demanding applications.

» Precision as a Standard

We use precision wire tensioning systems, advanced CNC winding machines, and in line quality checks to ensure every coil meets exacting specifications for tolerance, reliability, and performance.

» Quality You Can Trust

Our AS9100:D and ISO 9001:2015 certified quality systems, as well as being ITAR registered, guarantee compliance with the highest industry standards, making us a trusted partner for aerospace, defense, and medical manufacturers.

Partner with Able Coil & Electronics

Since 1969, Able Coil & Electronics has delivered high-performance fine wire assemblies that push the boundaries of electronic design.

Whether you need prototype development or full-scale production, our fine wire winding expertise ensures consistent, high-quality results every time.

Contact us today to learn how Able Coil can support your next miniature coil project!



ABLE COIL
& ELECTRONICS

www.ablecoil.com