



## **Mastering RFID for Difficult Environments**

Over time, Aviant has developed an expertise in tagging metals and liquid products, resolving difficult custom mechanical configurations and controlling RFID readers with proprietary embedded systems.

Aviant's team understands the limits of RFID technologies and how to use custom machine design and other unique approaches to get the most out of the technology.

### **Metals/Liquid Products**

Aviant finds Low Frequency (LF) products deliver a better read rate when it comes to tagging metal and other difficult to tag items such as liquid products.

While recent advancements have improved High Frequency (HF) and Ultra High Frequency (UHF) operation around metal and liquids, LF still offers some advantages for tagging these items.

LF products primarily use inductive coupling rather than radio waves to activate the tag and transfer data to the reader. Inductive coupling significantly reduces the risk of interference in metallic environments and absorption around water or liquid products.

### **Difficult Custom Mechanical Configurations**

While different types of RFID antennae are now commercially available, RFID applications often require custom antenna design to fit the antenna into a machine or fixture. Aviant has built many unique antennae out of various materials to achieve the right fit and maintain the required read range.

Examples include a custom antenna for a Navy decoy launch unit which required extremely tight placement in the metal alloy casting of the chamber, a rugged weatherproof antenna for a waste and recycling hauler, and different types of low-profile antennae to track medical device filters in medical office environments. Aviant has also built an antenna capable of tracing grinding tools (in machine) within an automotive parts production plant.

### **Controlling Embedded Systems**

One of the greatest challenges in working with RFID technologies is to control the various components that comprise a complete solution. Aviant is experienced at building embedded systems (hardware and firmware) that are dedicated to controlling other systems.

To date, Aviant has built embedded solutions to control RFID reader integrated circuits (ICs), RFID reader units, production machines, medical devices and Wi-Fi and cell networks to transmit RFID (and other) data.