How Bunting Makes a Better Burger

by Robert Bunting Jr. – Product Manager, Metal Detection

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On a hot summer evening, there's nothing like a cold beer and a burger fresh off the grill. So how does Bunting Magnetics Co. improve what is already a great concept? Everyone knows about basic food safety—keeping the hamburger cool until the grill is hot and cooking to a minimum internal temperature. But food safety is a concern far earlier in the process—or it certainly should be.

Your hamburger begins its journey to the grill as a side of beef and then undergoes a series of processes includ-ing grinding and packaging. The beef may be formed into patties, or sent to the supermarket as bulk hamburger. Either way, the meat probably passed through a metal detector, to determine that it was free of metal. If cheeseburgers are on your menu, the cheese maker probably took similar precautions—passing slices of cheese through a metal detector to ensure they are contaminant free. Even your condiments probably passed through still other metal detectors before the lid was put on the jar or bottle.

Food processors and packagers use metal detection as a first line of defense in the food safety wars, and metal detectors are nothing new in the food industry. What is new, however, is how metal detectors work in the 21st Century. Back in the day, all metal detectors did was detect ferrous metal. But today's metal detectors do far more. Let's look at how they have evolved.

Nonferrous Metals—Detecting iron is one thing; finding aluminum or the many exotic alloys used in the food processing industry is another matter. But metal detectors now are not only able to detect nonferrous material, they can distinguish between the two types of metal.

Stainless Steel—Despite the somewhat misleading name, stainless steel cannot be detected by early metal detectors. And because most equipment in the food industry is made of stainless steel, this is an important distinction. Food processors and packagers should ensure that their metal detectors are state-of-the-art and capable of finding stainless fragments in the product stream.

Better Sensitivity—Metal detectors today are not only more sensitive, but they are able to sense subtle differences in product based on that sensitivity. The result is fewer false rejects. And while these improvements are only incremental, the changes often increase product throughput and operating efficiency.

Alarms and Alerts—Older metal detectors simply sound an alarm indicating that metal has been found in the material being inspected. Metal detectors today are able to discern differences in the product passing through them and sound alarms accordingly. In addition, newer metal detectors are essentially fast-acting reject mechanisms that shunt bad product out of the main production stream and isolate it. Older metal detectors often sounded an alarm when a package went through the machine while oriented in an unusual fashion, but new machines can sense the disorientation and still provide a reliable reading. And the newest metal detectors are configured to monitor material passing through a tunnel, passing by while gravity fed, or being forced past the monitoring station under pneumatic pressure. All this means that although metal detectors exist primarily to find metallic contaminants in the food supply, they also often alert process operators to other problems, such as nonstandard volumes or even changes in food composition.

Information Log—Metal detectors today keep meticulous records. They identify and log each individual package that passes through them. They also keep track of how often the operator passes test samples through them, and whether they were able to discern which was which. And they also know which operator did the testing. Such data not only prove that the metal detector was operating at the time, but are invaluable if product recalls or potential liability is at issue for a specific product.

Operator Monitoring—A lazy or incompetent operator may attempt to fool a machine that is monitoring the food processing process. Today's machines require the operator to identify him/herself and record any activity, with attribution to the individual operator. This kind of information is extremely valuable when a recall is being considered or the potential exists for product to be withdrawn from the marketplace.

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The most popular metal detector for food processing or packaging applications is the Bunting meTRON™ series machine. A "tunnel" style device, the meTRON has an opening through which product must pass for inspection. The sensors incorporated in the machine are sensitive enough to perform all the tasks outlined above, and provide proper documentation of all activity using the machine. Bunting meTRON machines are available in several configurations, ranging from a simple tunnel arrangement, to complex conveyors designed and built to support high-speed production lines. But all have the Bunting triple-coil design that maintains accuracy, and an epoxy-filled stain-less steel search head that can withstand rigorous cleaning and harsh cleansing agents.

A key feature of Bunting meTRON metal detectors is the Image Phase software, which makes it possible for the machines to sense differences far too subtle for the last generation of machines. For example, certain foods typically cause false readings in metal detectors—the mustard for your burger, for example, has a high vinegar content, which often confuses less sophisticated metal detectors. The same is true of meat, where varying fat content can produce unreliable results in older machines. Bunting Image Phase software also enables the machine to sense product is going through the tunnel in an unusual way, discern the difference, and still pass the product if no actual metal is detected.

Another popular metal detector—particularly in bulk food applications such as sugar or flour—is the Bunting pTRON™ series of metal detectors. Bunting pTRON metal detectors can be placed in horizontal or vertical piping moving powdered material. Now available for use in pipe as large as 8 inches in diameter, pTRON detectors provide the same assurance as Bunting meTRON detectors, but for bulk materials being transferred from place to place.

Bunting Magnetics Co. is the leader in metal detection, as well as magnetic separation and conveying. If product purity is a question, Bunting has the answer.

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