

# New Software Technology Improves Metal Detection Capabilities in Cheese Applications

## Key Words

- X (magnetic) signal
- R (resistive) signal
- Product Effect
- Phase Angle
- False Positive
- Signal Cancellation

Metal contamination in cheese—especially stainless steel in sliced cheese—is an ongoing concern in the cheese processing and packaging industry. Tiny fragments from mixing, handling, cutting, slicing and packaging equipment can cause major headaches not to mention lost revenue, untold damage to brand image and loss of consumer confidence.

**Thermo Scientific Intellitrack XR (IXR) is breakthrough software that helps improve metal detection capability in challenging applications like cheese by 30-50%.**

A major advancement in metal detection technology, IXR features an innovative signal cancellation approach that is ideal for detecting metal in cheese.

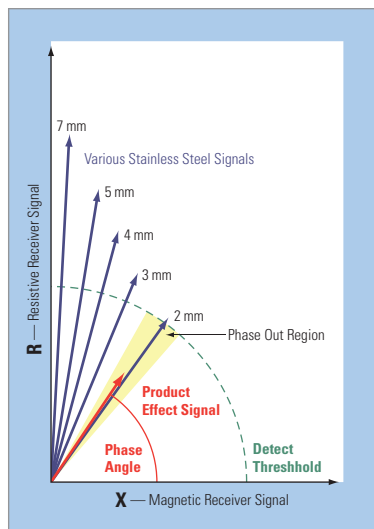
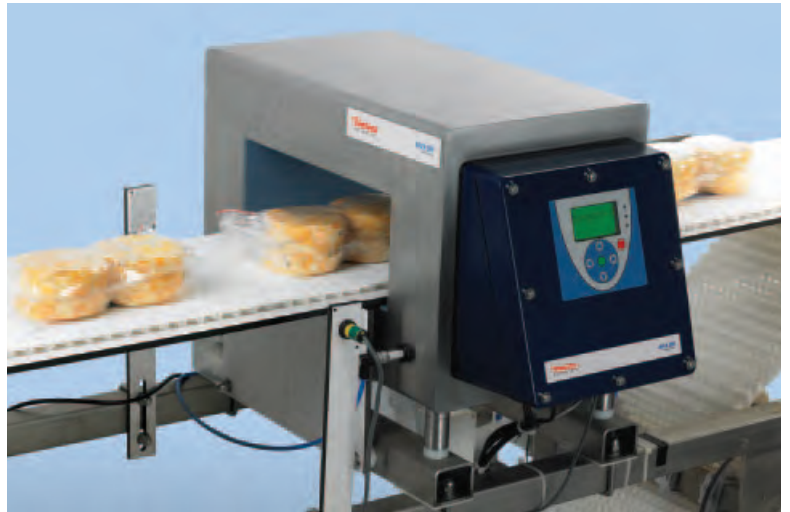


figure 1 – Phasing out a product to find various sizes of stainless steel



Every year there are cheese recalls.

Despite advancements and increased sensitivity in metal detecting equipment, the fundamental process of how metal detectors detect metal has not changed and therein lies the problem.

Metal detectors work by generating and analyzing two signals that are transmitted through an object—X and R. Metal contaminants affect X (magnetic) and R (Resistive) receiver signals in different ways. If the signal is in balance there is no metal present. If the signals are unbalanced there may be metal present...or not.

- Products like cheese have X and R effects that can appear to be similar to metal.

- To eliminate the “false positive readings,” today’s metal detectors have learned to compensate for this “product effect” by determining the cheese’s peak X and R signals.
- The metal detector creates a ratio of the two effects. This is known as the “phase angle.”

**The metal detector ignores any reading that falls within a region around the products phase angle.**

- This prevents false positive readings.
- Unfortunately, it also leaves your product vulnerable to metal contamination if the metal is small enough to fit within the product’s phase out region.

How can you protect your brand, your customers, and your bottom line?

- Use a metal detector with Intellitrack XR software to enhance safety by replacing phasing and providing a higher level of protection for manufacturers and consumers alike.
- IXR is an innovative signal processing solution that learns the actual sinusoidal X and R signals the product creates as it passes through the metal detector.
- Once the signals are stored in memory, Intellitrack XR cancels them out by subtracting a signal that is equal to but the exact opposite of the product's X and R signal.
- Since IXR knows the product signal and removes it—any signal left over is quickly identified as suspect.
- This all new dual channel (X and R) cancellation algorithm can eliminate the risk of a foreign metal object going undetected in many cases where phasing will mask out the metal signals.

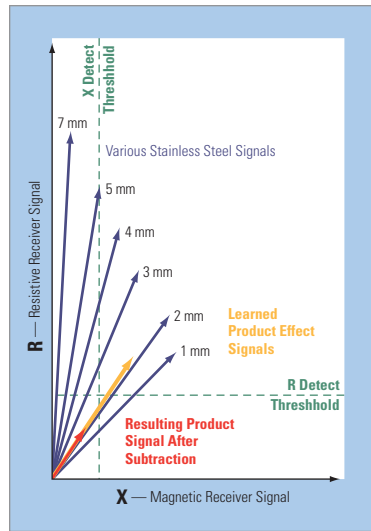
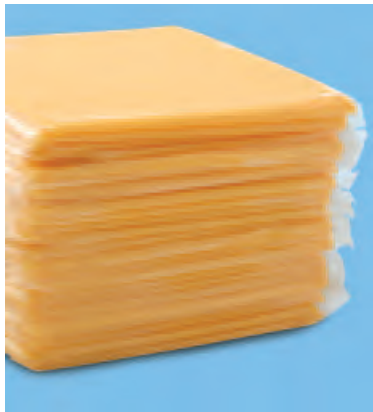


figure 2 – IXR subtracts the product signals and then detects on either channel

Because cheese can change over time, IXR also tracks and adjusts product signals on the fly to assure high performance and to eliminate false rejects. The result is up to 50% smaller diameter metal can be detected in many previously difficult metal detection applications.

The new IXR software is available on all Thermo Scientific APEX models including the APEX™ 300 D and P models, APEX 100 and APEX 500.

Intellitrack XR can help you provide quality, peace of mind and the highest level of metal contaminant protection possible for consumers around the world.

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