FORTRESS
TECHNOLOGY

NEVER
OBSOLETE

Inspection & Contaminant Detection
Success Stories: Changing the Global
Food Safety Narrative
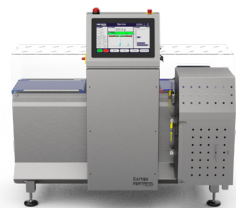
RAPTOR

NEW FOOD WASTE-SAVING CHECKWEIGHING SERIES

Legislative weight regulations can be complex. The Raptor checkweighers, caseweighers, combination, and customized systems ensure compliance with evolving net weighing regulations. Safeguarding consumers and brand reputations, Raptor checkweighers identify and reject under and overweight packaged foods, while minimizing giveaway and reducing food waste.

Allowing for easy integration with existing equipment and featuring automated tolerance tables, the robust Raptor checkweigher can virtually eliminate underweight consumer complaints and product returns, while prioritizing HACCP food safety and metal detection.

Raptor Checkweigher

Bakery, cheese, dairy, snacks, confectionery, meats, prepared meals, and more.

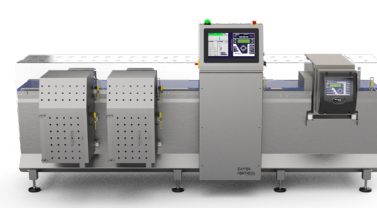100mm, 200mm, 300mm & 400mm belt widths available.

Raptor BBK Caseweigher

Large bags and cases e.g. pet food, garden supplies, bulk grain and ingredients.

300mm, 500mm & 600mm belt widths available.

Raptor Combination

Fully integrated metal detector and checkweigher on a single frame, separating weight and contaminant rejects.

100mm, 200mm, 300mm & 400mm belt widths available.

"We are fully reliant on the Raptor Combination system to fulfill our consumer quality guarantee."
Jan Schipper, Director at Soupy

INTUITIVE MENU
Easy-to-use. Fast re-calculations linked directly to automated tolerance tables.

HYGIENIC
Designed for easy cleaning. Removable conveyors that maintain alignment and tracking on reassembly. Prevents cross-contamination.
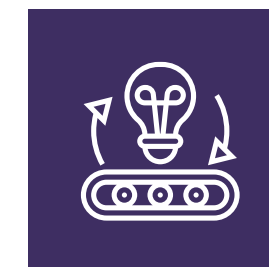
SECURE ACCESS
Secure web-based interface. RFID-controlled user access cards.

ROBUST DESIGN
Heavy-duty stainless steel frame construction minimizes vibrations. Airflow covers mitigate debris and air currents, optimizing perfomance.

CONVEYOR RUN ONLY MODE
Option to remove the checkweigher motor control and run the conveyors independently.

NEVER OBSOLETE
Modular electronics for easy integration. Technology upgrades for a longer, more sustainable machine lifespan.

NEVER OBSOLETE IN PRACTICE

With 50+ Fortress metal detectors on-site, a large grain processor recently reconditioned and mounted 13 existing metal detector heads onto new incline conveyor frames, inspecting heavy rice bags.

The 14ft long conveyor belt with a 45° incline moves packs to a Stealth metal detector. It's built to handle high production rates, and the customized heads and apertures maintain performance and detection sensitivity.
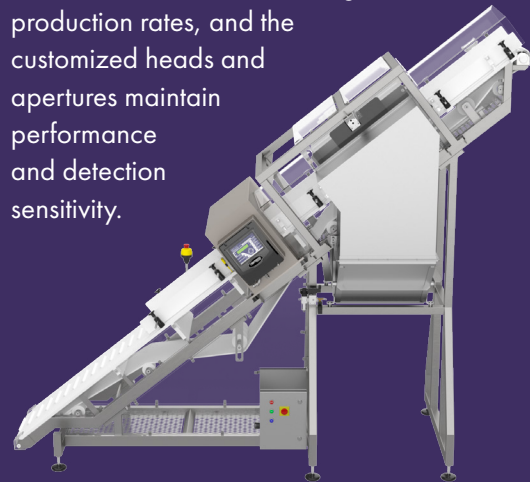
A bi-directional overhead sweep rejects product using a paddle that moves across the conveyor, avoiding collisions with belt features and trailing rice bags. Rejected product is funneled safely to ground level.
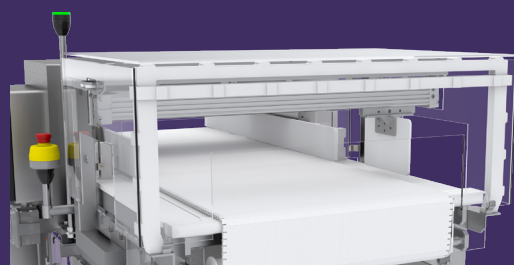
EFFICIENCY

Fortress is currently upgrading 10 Phantom metal detectors to Stealth for this processor. The units were more than a decade old. Data logging and reporting capabilities are to be added.

ENVIRONMENTAL SAVINGS

"These machines are still fit-for-purpose. However, for companies that require data logging capabilities, upgrading to a Stealth is very straightforward. This saves customers a lot of money. It also prevents industrial assets adding to the environmental costs."
Jake Murray, Regional Sales Manager at Fortress Technology.

The rice processor also has the following systems installed in their facility:

- Multiple Fortress Gravity metal detectors located between product chutes and hoppers.
- Large bag metal detectors, featuring a large aperture, special coil structure and Vector heavy-duty conveyor.
- Offline lab units, examining rejected products and separating metal contaminants from the rice.

DOUBLE BENEFITS FOR DAIRY PROCESSOR

Iconic cheese brands need the ultimate QC protection. Fortress Technology delivered robust metal detection and checkweighing verification in one high-spec, dual-lane conveyor configuration.
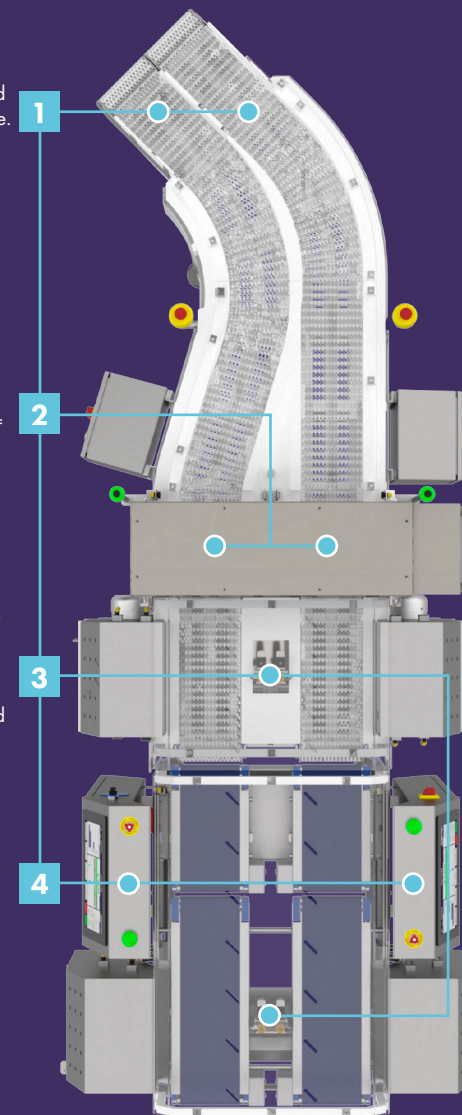
Integrated with VFFS high-speed bagging machine. Delivering 130 ppm

1

2 compact apertures, each inspecting independently = 50% less good product waste

2

4 reject devices feeding into 2 reject bins, isolating metal contaminant and weight rejects

3

2 Raptor 200 Checkweighers, verifying pack weights in real time

4

A compact curved conveyor ensures optimal spacing between lanes of product packs as they are fed into the two Fortress metal detector apertures. This engineering approach can address one of the greatest challenges when checkweighing on fast-paced packing lines; making sure there is sufficient distance from one pack to the next and guaranteeing that only one pack is present on the weigh conveyor at any given time.

MODULAR DESIGN + **COMPACT CONVEYOR** = **LESS WASTED SPACE**

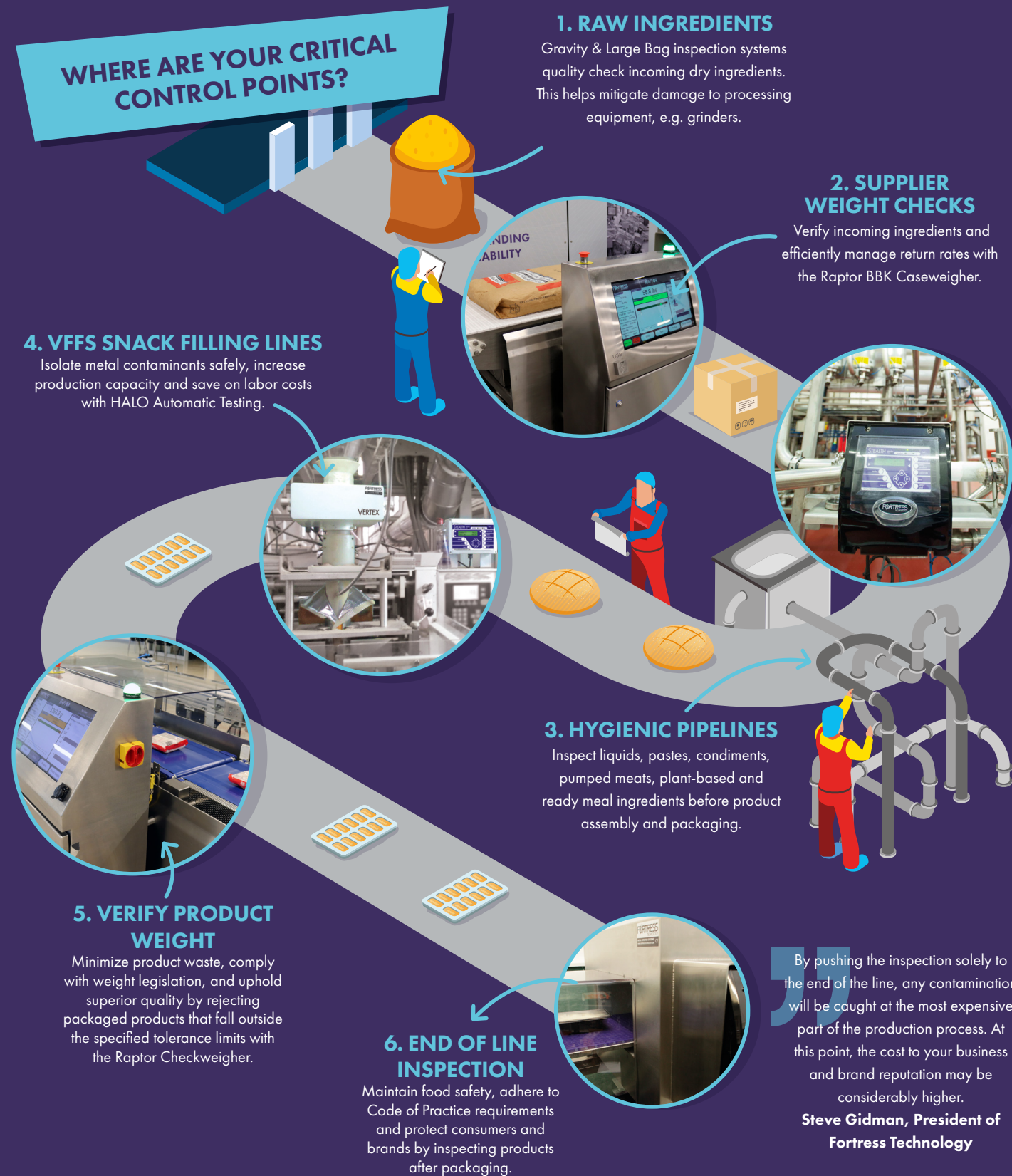"This game-changing multi-aperture design facilitates high-speed and accurate metal detection and marks a significant advancement for lean manufacturers seeking to reduce factory footprint and improve Total Cost of Ownership (TCO). This customized inspection solution has no trade-off in terms of performance and inspection sensitivity."
Eric Garr, Regional Sales Manager at Fortress Technology

UPSTREAM INLINE INSPECTION...

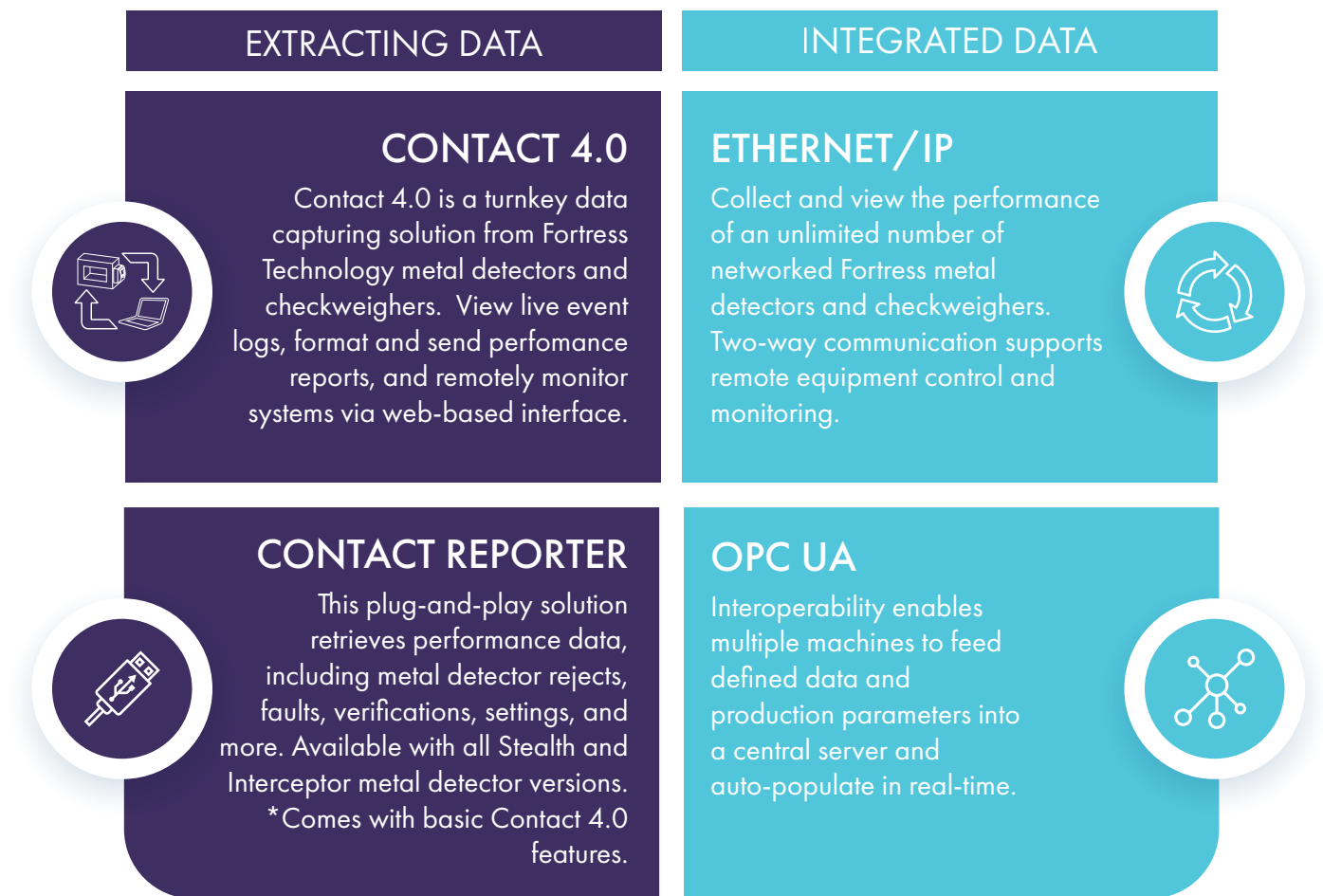**WHY IT PAYS TO CATCH FOREIGN BODY CONTAMINANTS AT THEIR BIGGEST**

Removing metal contaminants at the beginning of the food processing line equates to eliminating them during the most cost-effective phase of your production process. Upstream inspections complement end-of-line systems by identifying and rejecting contaminants that could harm your brand, thus averting the need to recall an entire product batch.

WHERE ARE YOUR CRITICAL CONTROL POINTS?

1. RAW INGREDIENTS
Gravity & Large Bag inspection systems quality check incoming dry ingredients. This helps mitigate damage to processing equipment, e.g. grinders.

2. SUPPLIER WEIGHT CHECKS
Verify incoming ingredients and efficiently manage return rates with the Raptor BBK Caseweigher.

4. VFFS SNACK FILLING LINES
Isolate metal contaminants safely, increase production capacity and save on labor costs with HALO Automatic Testing.

3. HYGIENIC PIPELINES
Inspect liquids, pastes, condiments, pumped meats, plant-based and ready meal ingredients before product assembly and packaging.

5. VERIFY PRODUCT WEIGHT
Minimize product waste, comply with weight legislation, and uphold superior quality by rejecting packaged products that fall outside the specified tolerance limits with the Raptor Checkweigher.

6. END OF LINE INSPECTION
Maintain food safety, adhere to Code of Practice requirements and protect consumers and brands by inspecting products after packaging.

By pushing the inspection solely to the end of the line, any contamination will be caught at the most expensive part of the production process. At this point, the cost to your business and brand reputation may be considerably higher.
Steve Gidman, President of Fortress Technology

MANAGING DATA THE 'SMARTER' WAY

Data control is integral to product traceability and smarter decision making. From simple to complex, Fortress Technology's suite of communication tools and connectivity software gives food processors HACCP and GFSI-compliant record-keeping options. These features are available on all Fortress metal detection and checkweighing machines.

DATA CONTROL

EXTRACTING DATA	INTEGRATED DATA
CONTACT 4.0 Contact 4.0 is a turnkey data capturing solution from Fortress Technology metal detectors and checkweighers. View live event logs, format and send performance reports, and remotely monitor systems via web-based interface.	**ETHERNET/IP** Collect and view the performance of an unlimited number of networked Fortress metal detectors and checkweighers. Two-way communication supports remote equipment control and monitoring.
CONTACT REPORTER This plug-and-play solution retrieves performance data, including metal detector rejects, faults, verifications, settings, and more. Available with all Stealth and Interceptor metal detector versions. *Comes with basic Contact 4.0 features.	**OPC UA** Interoperability enables multiple machines to feed defined data and production parameters into a central server and auto-populate in real-time.

ROBUST, RELIABLE & SUSTAINABLE

Toney Lumber metal detector lasts 25+ years.

Toney Lumber Company, located in Louisburg, North Carolina, stands as a beacon of unparalleled equipment reliability. 25 years after their initial installation of a Fortress Metal Detector, they have now upgraded to a new model. The true marvel lies in the enduring functionality of their inaugural detector, which continues to serve by re-inspecting logs initially rejected from the process.

Regardless of weather conditions, the durable outdoor metal detector under a sloping roof has withstood heat waves, snowstorms, heavy rain, and hurricanes. It consistently detects and rejects 10 to 30 logs daily containing embedded metal contaminants.

CUSTOMER CONFIDENCE

"Metal detection supports our quality control and sustainability strategy by helping to mitigate machine downtime. It also helps to deliver a better yield for the timber and logs we purchase, predominantly sourced from local landowners. Any measure that helps to improve yield and stops valuable timber being wasted is a more sustainable practice."
Roger Melvin, President of Toney Lumber

THE CHALLENGE

The metal detector would be subject to extreme environmental conditions.

The logs were saturated with water to prevent a fungus from forming, which could affect the sensitivity of metal detectors.

Metal impurities within wood can lead to significant expenses. Replacing saw blades costs thousands of dollars and requires production downtime to fix.

THE SOLUTION

A robust Stealth Lumber metal detector with digital signal processing technology and single frequency operation was installed. Fortress worked with the sawmill to establish wet, dry, and mixed calibration settings, enhancing detection accuracy and reducing false rejects.

THE RESULT

The sawmill's investment in the Lumber metal detector paid off over 25 years, preventing costly saw blade damage, maintaining production efficiency, and supporting overall business sustainability.

DOUGHNUT PEDDLER

Failsafe protection supports national expansion.

Doughnut Peddler's ambitious expansion program was supported by four Fortress Stealth Metal Detectors. These detectors individually inspect 160 doughnuts per minute, effectively raising the company's production lines to meet the highest food safety and Good Manufacturing Practice (GMP) standards.

Metal detection added another layer of 'failsafe' protection. Over three years, they expanded from being a single-bakery operation servicing a single state, to a multi-site enterprise supplying retailers across North America.

The metal detectors inspect doughnuts as they come out of the fryers. Once cooled, the doughnuts are packed into plastic trays and are ready for shipping.

"Potential customers we are reaching out to are even more encouraged to work with us as they learn of our use of the robust metal detection HACCP plan we have in place."
Jason Yada, National Director of Sales at Doughnut Peddler

THE CHALLENGE

High frying temperatures + Moisture = Product effect

This can trigger high volumes of false rejects, increasing waste and disrupting production.

THE SOLUTION

Doughnut Peddler chose Fortress Technology's Stealth Metal Detectors with powerful digital signal processing technology and Fortress' FM Software. This allowed the detectors to accurately identify signals from different types of metals while overcoming the risk of false rejects.

THE RESULT

The adoption of robust metal detection technology has instilled confidence in both existing and new retail customers, enhancing Doughnut Peddler's reputation for food safety and enabling the bakery's expansion.

ENHANCED INSPECTION FOR SALTY & SWEET PRODUCTS

Two Interceptor metal detector models are engineered to overcome unique inspection hurdles, prioritize food safety and protect premium brands:
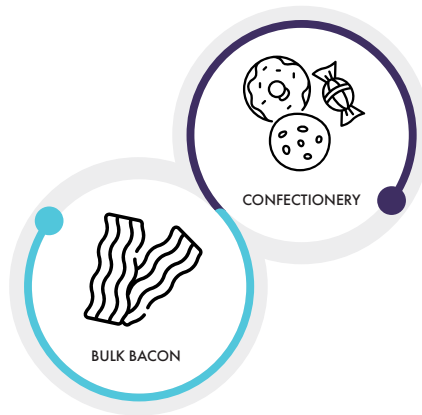

INTERCEPTOR | Bulk Bacon

CONFECTIONERY

BULK BACON

INTERCEPTOR DF | Confectionery

CAUSE

- Salty, wet products have high conductivity. This causes product effect.
- Standard metal detectors struggle to distinguish the signal generated by product effect and real metal contaminants.

- Mixing, rolling, scoring, molding, reworking and baking can introduce ultra-thin metal flakes to premium low-profile foods.

CHALLENGE

- Increased false rejects.
- Higher product waste.
- Greater potential for real metal contaminants to be missed.
- Constant resetting and recalibration of metal detector for different pack sizes.

- Conventional metal detectors that scan with a single field orientation can struggle to identify thin metals due to size, orientation and geometry.

SOLUTION

- A major bacon supplier to a fast food chain added 4 Interceptor Metal Detectors.
- Different sensitivity settings were needed for checking 10lb and 15lb bacon packs together.
- Fortress placed a vision camera at the conveyor input to recognize diverse product sizes.
- Auto calibration resolved the problem of frequent metal detector adjustments for various pack sizes.

- Chocolatiers use the Interceptor DF for optimal detection sensitivity.
- Divergent Field technology scans confectionery vertically and horizontally concurrently through a low-profile aperture.
- Multiple coils create fields in different orientations.
- Identifies difficult-to-spot flat flakes and foils.
- Minimizes misalignment risks, thereby reducing the potential for contamination.

RESULT

- Overcomes product effect.
- Enhanced noise Immunity further lowers the risk of false rejects.
- Minimizes costly waste.

- Increases the probability of rejecting products containing flat metals by over 100%.
- Protects premium, high-value brands.

HALO AUTOMATIC TESTING

Delivering quality from farm-to-freezer-to-table.

Fortress Technology's Automatic Testing solution eliminates human errors and saves on operational and labor costs at a major frozen fries factory.

Deployed across 25 sensitive Stealth metal detectors, Halo's automated system utilizes data from the infeed photo sensor to determine the optimal moment for introducing the simulated test sample. These tests accurately replicate the disruptions caused by a metal contaminant, meticulously calibrated to match specific size, metal type, and product speed as it passes through the aperture.

"Testing all three metals in three positions ensures the metal samples are not being masked by the product in any position and also confirms that the reject system is tracking correctly. This is especially important in frozen bulk products when the characteristics might change due to slight thawing during the inspection phase."
Eric Garr, Regional Sales Manager at Fortress Technology

THE CHALLENGE

Manual testing of metal detector performance on bags of fries (ranging from 0.5 lb to 20 lb) is labor-intensive, production-disruptive, costly and wasteful. QC standards demand testing of ferrous, non-ferrous, and stainless steel in three positions as fries traverse the detector. Slight thawing alters detection sensitivity, causing false rejects and more waste. Manually conducting and documenting these tests introduces the possibility of human errors.

THE SOLUTION

- Pre-programmed hourly Halo tests for 3 metals at product center (leading, trailing, middle) that verify the reject system.
- Production halts only for metal detector or reject check failure.
- Failsafe reject conveyors, magnetic locks, and security card access isolate metal-contaminated items.

THE RESULT

Halo eliminated human errors, reduced workforce safety risks, saved on labor, and minimized product waste - with a payback period estimated of just a few months.

RAISING FOOD SECURITY ON GRAVITY-FED LINES

Best-in-class inline metal detection for free-falling dry product applications, including flour, rice, cereal, corn, sugar, powder, grains, nuts and seeds. Gravity metal detectors boost productivity, enhance food safety and maintain HACCP compliance.

SERVICE SUPPORT

Always on standby. At Fortress Technology, we prioritize providing exceptional customer support, without the need for service contracts.

WHY INSPECT UPSTREAM?

1 It's easier to detect contaminants, trace them to the source and alert staff to potential equipment failures before they trigger large-scale product recalls.

2 Re-inspecting and checkweighing raw materials as they enter processing plants maintains high quality throughout the supply chain.

3 Prevents metals from entering the production process and damaging downstream equipment.

4 Minimizes rejected product downstream, resulting in reduced product and packaging waste.

Gravity systems are custom-manufactured to accommodate various production layouts - including mezzanine floors, ceiling mounts and between product chutes and hoppers. Incorporating automatic testing (see page 11) offers labor and time-saving benefits by reducing workforce demands and eliminating production downtime.

To remove metal contaminants from good product flow, Fortress engineered a roll-out easy-clean diverter valve reject system. This innovative optional design addresses a longstanding challenge with Gravity systems, as it allows for easy access to the enclosed reject mechanism for deep cleaning and maintenance.

⚠️ For mills or chemical plants where the application presents a combustible explosion risk, Fortress supplies clear ratings to meet the defined hazardous location standards.

All of our customers benefit from free telephone support with access to our expert factory-trained technicians. Their comprehensive understanding of our machines means that they deliver prompt and practical troubleshooting advice. When reaching out for assistance, remember to have the machine serial number ready to expedite the process.

Our dedicated service team offers on-site and in-house repairs, remote and on-site tech support, and is always available to provide assistance with:

- Sourcing the right inspection solution for your product applications
- Determining sensitivity specifications
- Final stringent QC checks before shipment
- Overseeing installation and set up processes
- Initial operator training and certified training for QC personnel, operators & engineers
- On-site equipment validations
- Servicing and quality audits on request
- Fulfilling parts requirements with a quick turnaround
- Access to in-stock rental units

BENEFITS OF FORTRESS

NEVER OBSOLETE
Confidently upgrade your existing systems with backwards compatible parts, software upgrades, and support.

TRAINING PROGRAMS
We offer a training service and initial system start-up to ensure your inspection system runs smoothly.

MODULAR ELECTRONICS
Interchangeable parts reduce stock requirements and ensure cost-effective maintenance.

COST OF OWNERSHIP
Cut costs with energy efficiency and durable components. Halo automatic testing reduces manual testing expenses.

HAPPY CUSTOMERS

Vouching for the Fortress value

"Fortress metal detectors are really sensitive. This helps us to feel confident that the risks of contaminants are minimal, with less chance of a food safety issue. Having the double readings within the Interceptor system also lowers the risk of false-positive rejects, which saves on food waste."
Hugo van Put, Technical Operations Manager at Vepo Cheese

"The Raptor Combination system went in seamlessly. It's very user-friendly. The screen collates all the production data we need. It ensures full weighing accuracy, extremely sensitive metal contaminant detection levels, full traceability and exceeds all of our COP compliance requirements. This machine has been critical for our brand assurance - it gives us the ultimate peace of mind. We will have zero hesitations in ordering more Raptor systems when the time comes."
Sinéad Crowther, Co-Founder of Soothing Solutions

"We looked at various options and suppliers, gathered quotes and asked colleagues in the industry to share their experiences. We received positive feedback from everyone who had owned a Fortress unit – no one had anything negative to say about them."
Jon Dairman, Senior Operation Manager – Procurement at Doughnut Peddler

"We now have three fully automated lines that checkweigh, fill packs, insert the scavenger and inspect for metal detection. Fortress metal detectors have increased our capacity, with our three lines now running non-stop 11 hours a day, 6 days a week; allowing us to meet European demands as our product range and the number of stockists and specialist markets we supply expands."
David Stephenson, Engineering Manager at Meatsnacks Group

"To keep pace with the growing number of supermarket and convenience store orders, and continue meeting the stringent retailer Codes of Practice, we needed an efficient automated inspection process. Our multi-aperture Fortress metal detector is integral to this effort and has proven reliable and easy to operate."
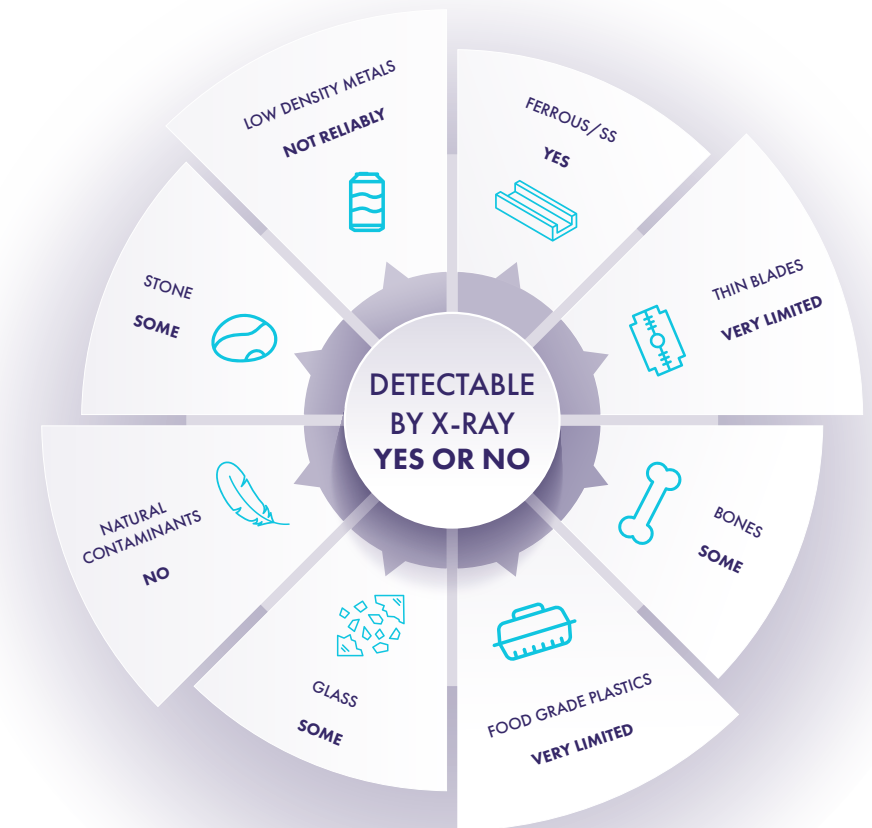**Mr. Boneschansker, Plant Manager at Borgesius Bakery**

X-RAY OR METAL DETECTION?

2 Technologies, 1 Purpose – Keeping Global Food Safe

Metal is a significant high-risk and uncontrolled source of contamination. It's present in various places, such as factories, farms, and fields.

Replacing a **metal detector** with an **x-ray** can mean users will lose virtually all detection of low density metals (e.g. aluminum, thin metals like box cutter blades and foil).

DETECTABLE BY X-RAY YES OR NO

LOW DENSITY METALS — NOT RELIABLY
FERROUS/SS — YES
THIN BLADES — VERY LIMITED
BONES — SOME
FOOD GRADE PLASTICS — VERY LIMITED
GLASS — SOME
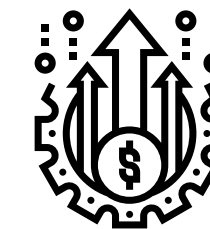NATURAL CONTAMINANTS — NO
STONE — SOME

CALCULATING THE COSTS

Factoring in operating costs, maintenance, labor, parts and sensor calibrations, an x-ray will typically cost **10** times that of a metal detector.

X-RAY $252,000

METAL DETECTION $27,000

C.O.O. 10 YEARS
*Estimate based on 14" x 5" aperture. Not including lost production costs for re-calibrations.

X-RAY INSPECTION IS FORECAST TO GROW AT A CAGR OF
7.2%
BY 2030[I].

FOOD METAL DETECTION MARKET HAS A PROJECTED MARKET VALUE OF
$8,152.3
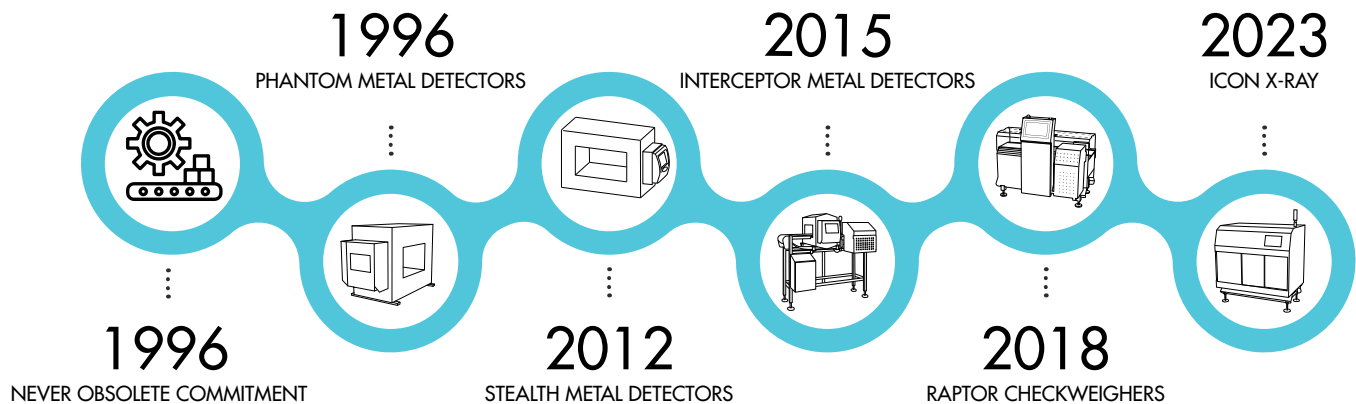MILLION BY 2033[II].

[I] Data Bridge Market Research 2023
[II] Future Market Insights report 2022

BE PART OF THE FORTRESS FOOD SAFETY STORY

Fortress Technology is a global leader in the design, manufacturing and sales of metal detectors, checkweighing systems and combination systems, engineered with an exclusive Never Obsolete guarantee. From food to consumer goods; pharmaceutical to bulk; Fortress machines are designed to catch contaminants, reduce waste, spot product defects, comply with weight legislation and reduce production downtime – ensuring product safety and brand protection. Thousands of food processors of all sizes globally trust our technology and team. What do they have in common? They all value our:

Simple Operation. Outstanding Reliability. Exceptional Performance.

1996
PHANTOM METAL DETECTORS

2015
INTERCEPTOR METAL DETECTORS

2023
ICON X-RAY

1996
NEVER OBSOLETE COMMITMENT

2012
STEALTH METAL DETECTORS

2018
RAPTOR CHECKWEIGHERS

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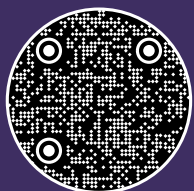
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OUR EQUIPMENT ONLINE**

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