SiftAI® Smart Table®

TURNKEY GRADING, SIZING, AND FOREIGN MATERIAL DETECTION SOLUTION

KPM | SMARTVISIONWORKS

Multifunctional Quality Control for Potato Facilities, Driven by Artificial Intelligence

OVERVIEW

The SiftAI® Smart Table® is an all-in-one inspection solution for potato facilities to automatically sort, grade, size, and detect unwanted foreign materials with little to no human intervention. Each system is trained with artificial intelligence (AI) models to analyze product attributes at high volumes, accurately routing and sorting products on user-defined criteria. As a turnkey solution, each SiftAI® Smart Table® is customized to meet the exact customer specifications.

SiftAI® Smart Table® safeguards against harmful foreign materials (FM) that can potentially damage equipment, prompt fines from customers, or introduce allergens into final products.

SIFTAI® SMART TABLE® BENEFITS

- **Labor savings:** Reduce and redistribute labor where needed at your facility.
- **Unmatched accuracy:** Removes subjectivity from sorting and grading procedures.
- **Improved throughput:** Allows facilities to operate at higher capacities.
- **Improved food safety:** Eliminate foreign materials and defective potatoes from the entire process flow.
- **Superior process control:** Real-time analysis and record keeping aid in business decisions and vetting of suppliers.

SIFTAI® SMART TABLE® FEATURES

- Designed to handle high product volumes (e.g., ~63,500 kg (140,000 lbs) of potatoes per hour (1,400 sacks/hr or 70 tons/hr).
- Programmed with robust AI models to automatically classify products for user-defined traits.
- Custom-configured systems that are easily scalable as needs change.
- Robust, intuitive software, available with analytics reports to improve process decision making.
- Manufactured and supported in the USA.

COMMON POTATO APPLICATIONS

Chip Potatoes

- Automatically identify and remove harmful foreign materials that can lead to costly food safety hazards and customer fines.

Process Potatoes

- Automatically identify and remove harmful foreign materials that can lead to costly food safety hazards and customer fines.
- Program acceptance tolerances for product defects and other cosmetic traits.

Fresh Pack Potatoes (Russet, Red, and Yellows)

- Automatically identify and remove harmful foreign materials that can damage equipment and hamper process flow.
- Ensure customers receive top-quality potatoes that meet specifications for size, shape, defects, and other aspects.

SiftAI® Smart Table®

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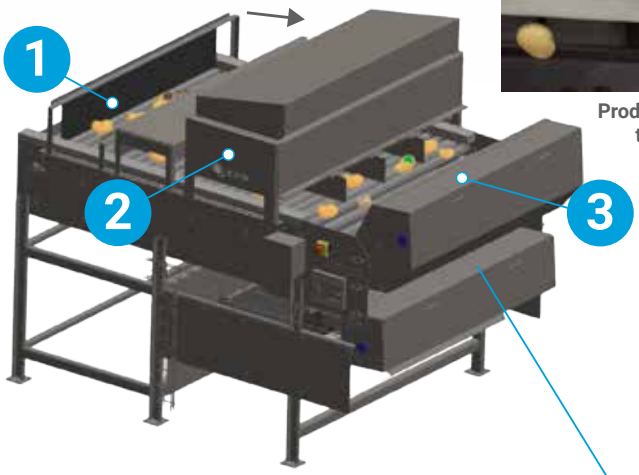
HOW THE SIFTAI® SMART TABLE® WORKS

Leveraging artificial intelligence, the SiftAI® Smart Table® automatically scans food products as they pass through individual lanes. Products are continuously tumbling on the roller belt, allowing the SiftAI® cameras to capture a complete view of the product. Based on the product's features, rejection fingers at the system's dropping point will direct products with any visual defects to a particular stream or let the product continue to drop if it meets all visual criteria for an ideal product.

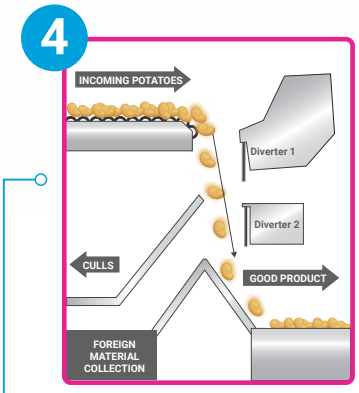
Then, for unwanted foreign materials, the SiftAI® Smart Table® will immediately remove those objects from the product stream and put them into its lane to be discarded. Through this all-encompassing closed-loop quality control system, no direct human intervention is required.

EXAMPLE SYSTEM CONFIGURATION

The SiftAI® Smart Table® product distribution is customizable to meet the user's specific needs.

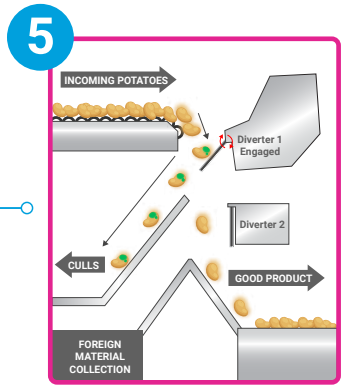


Products Entering the Chute

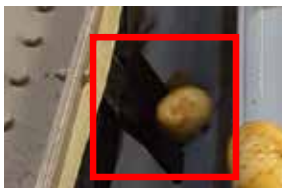


All Acceptable Potatoes

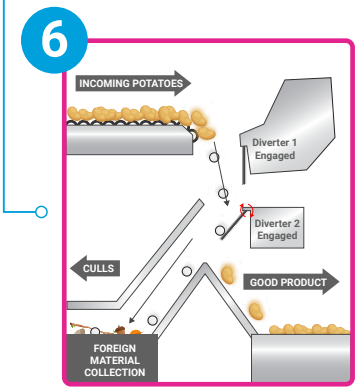
Product Passes Through



Defect Detected



Kicker Engaged



Golf Ball Detected

1. Potato enters the process stream
2. The SiftAI cameras record 360° product images on the rolling table
3. After analysis, products fall through the chute
4. Acceptable potatoes drop through the system and continue through their normal process
5. Culled potatoes are removed from the product stream and onto their own conveyor
6. Foreign materials are also removed from the product stream and into a collection conveyor

SiftAI® Smart Table®

COMMON ANALYZED DEFECTS WITH THE SIFTAI® SMART TABLE:

Russet Potato Defects

- Dry rot
- Scab
- Old bruise
- New bruise
- Green
- Misshapen (pear, banana, heart, knob)
- Rodent damage
- Pressure bruise
- Rhizoc
- Skinning/rub
- Air checks
- Lenticil (enlarged)
- Sprouts
- Nematode
- Cut/broken

Varietal Defects

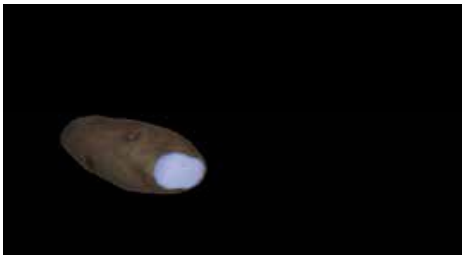
- Green
- Misshapen
- Old bruise
- New bruise
- Lenticil
- Rot
- Dry rot
- Pressure bruise

SIFTAI® SMART TABLE® ANALYSIS

Each SiftAI® Smart Table® is equipped with AI models to detect specific defects and features of products passing through a conveyor system. If a defect is detected, the system automatically calculates a percentage of that defect and determines its specific drop in the product flow based off of the user's defined tolerances.

Raw image of product on the conveyor.

AI segmentation.



AI segmentation with defect detected.

Foreign material detection follows a similar process. Equipped with AI models for foreign materials (sticks, rocks, golf balls, wood, plastic, and many others), the SiftAI® Smart Table® system scans the conveyor for any objects different from the product down to the finest detail. This includes foreign objects of similar color and texture.

Rock in the product stream

Walnut in the product stream

Black plastic in the product stream

SOFTWARE AND ONLINE SUPPORT

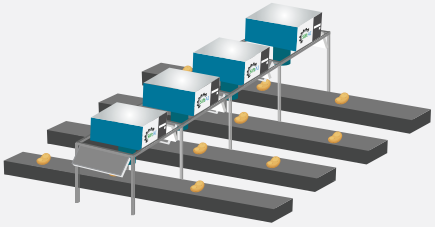
SiftAI® Smart Table® systems are paired with powerful software to continuously monitor your production process and provide data for operations and reporting. The user interface is intuitive, and operators can monitor production lines in real time, label and categorize foreign material, and provide analysis or health check reports. The Software as a Service (SaaS) is a yearly subscription service that includes regular software updates and AI model augmentation, providing you with the most up-to-date technology for high accuracy and precision. KPM Analytics can access the system to send updates and allow 24/7 support should any issues arise.

COMPLETE SOLUTIONS FROM ONE SUPPLIER

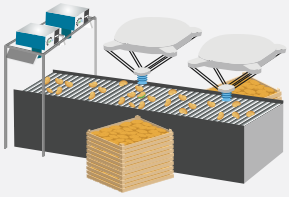
SiftAI® Smart Table® is only one part of a complete line of solutions KPM Analytics offers to potato processors. From pre-sorting to downstream sorting, sizing, and grading, through final product inspection, SiftAI® offers comprehensive and automated quality control that allows processors to achieve higher throughput with superior accuracy and reduced labor.

PRE-SORTING → LANE SORTING → FINAL INSPECTION

SiftAI® Smart Table®



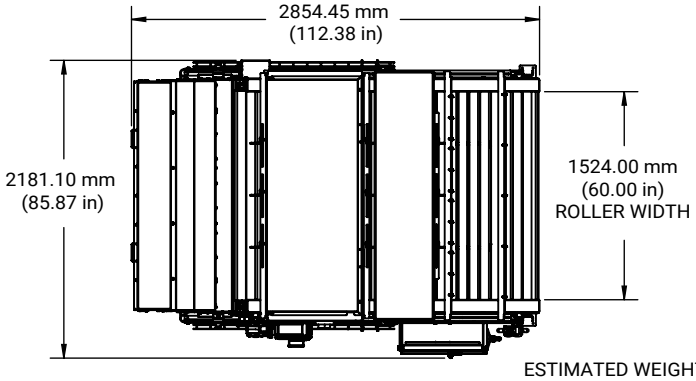
SiftAI® Multi-Lane Sorting



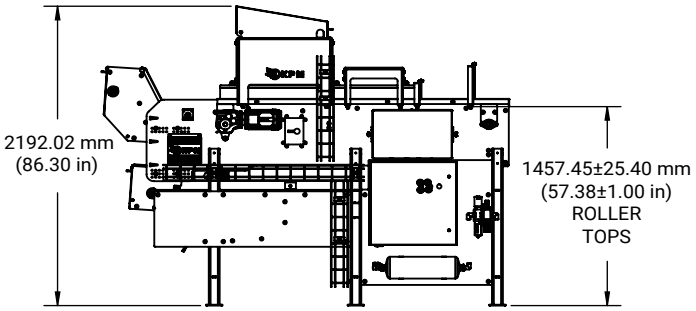
SiftAI® Robotic Sorter OR
SiftAI® Smart Table®

EXAMPLE SYSTEM SPECIFICATIONS 1524 mm (60 in) roller option pictured.

Top View



Side View



ESTIMATED WEIGHT: ~1400 Kg (3085 Lbs)

SPECIFICATIONS

Dimensions W x D x H	Varies by system configuration
Roller Width & Capacity*	762 mm (30 in) roller = 31,752 kg (35 tons) of potatoes/hr 1143 mm (45 in) roller = 47,173 kg (52 tons) of potatoes/hr 1524 mm (60 in) roller = 63,503 kg (70 tons) of potatoes/hr
Number of Drops	Up to 3 (1 for good potatoes + 2 downgrade drops for process potato, foreign material, #2's, or size sorting)
Carrier	Powered rollers
Number of Cameras	Depending on table width, up to 4 cameras
IP Rating	44
Connection requirements	Internet connection required
Voltage	480V, 3ph 30A
Air Volume/Pressure	30 CFM at 80 PSI

*Actual capacities may vary based off of product size profile.

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