Spinach Sorting System

The integrated system includes an Iso-Flo® fines removal shaker or dewatering shaker together with an acceleration belt and Manta® digital sorter to inspect fresh or washed spinach and other leafy greens such as cut cabbage, romaine, and iceberg lettuce. It is ideal for sorting fresh product at receiving, after cutting, or after washing and drying. This integrated system improves the accuracy of foreign material (FM) and defect removal to enhance product quality and food safety while increasing throughput and maximizing yield.

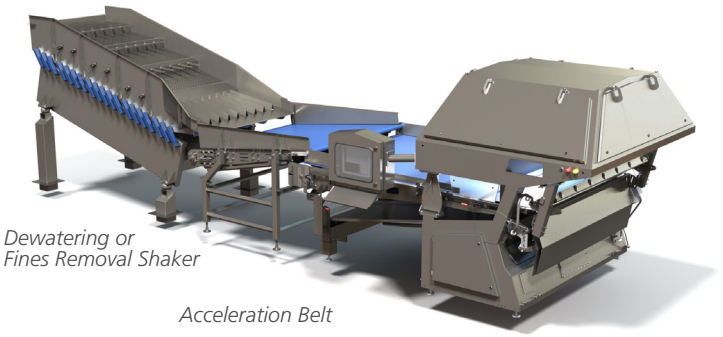
Featuring a Manta 2000 series sorter, this spinach sorting system inspects up to 13,000 lbs. (5.9 metric tons) of spinach per hour. When sorting cut romaine or iceberg lettuce, the system inspects up to 12,000 lbs. (5.5 metric tons) per hour. On cut cabbage, it can process up to 50,000 lbs. (22.7 metric tons) per hour.

Muddy Spinach

How it works

When located at receiving or after cutting, the first step in the process is a three-deck Iso-Flo fines removal shaker that removes small objects such as dirt clods, insects, sticks, small rocks, and cotyledons to reduce the load on the digital sorter. If the system is located after washing and drying, an Iso-Flo dewatering shaker is the first of the three integrated steps.

Next, a specialized acceleration belt spreads, singulates, and stabilizes product for optimal presentation to the sorter. By providing an ideal view of each object to the sorter's vision system and improving the consistency of each object's trajectory from inspection to ejection, the accuracy of FM and defect removal is improved, which maximizes product quality and yield.



Dewatering or Fines Removal Shaker

Acceleration Belt

Manta® Digital Sorter

Yield – Product stability is the number one factor in sorting efficiency. The shaker is designed to remove foreign material while also de-clumping and separating the leaves. Singulation and stabilization are further enhanced with the acceleration belt and the infeed belt for optimal viewing by the cameras and laser. The precision ejection system is aided by the consistent trajectory of the spinach. In testing the sorting system removed 100 percent of the foreign material while achieving a false reject rate of only 0.5 percent.

Consistency – High quality digital sorters deliver more consistent results than manual sorting with human operators. Not only is the digital sorter able to view wavelengths of light not visible to the human eye, the sorter uses lasers and top and bottom viewing to see every aspect and angle of the spinach to remove FM and defects. The consistent repeatability of the computer gives a more consistent and higher quality sorting result.

Safety – Foreign material and objectionable leaf defects are removed from the processing line and never reach the end consumer. The result is spinach of higher quality which improves the brand value and reduces the costs associated with customer complaints.

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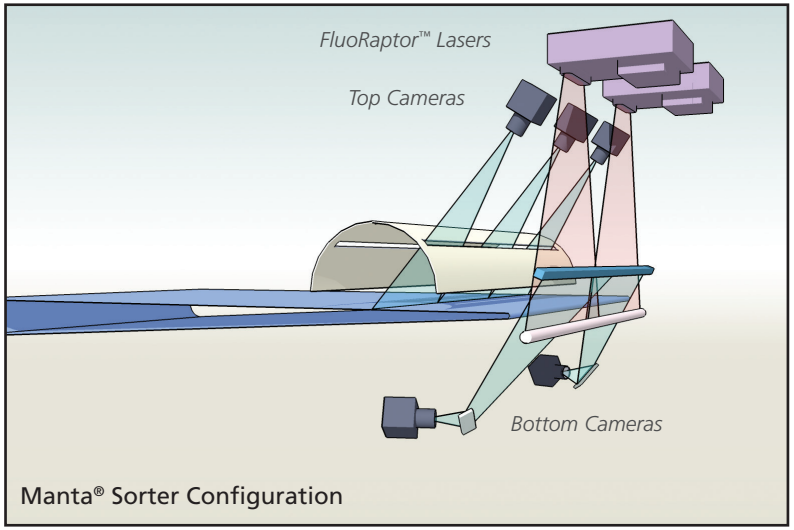
Top and Bottom Views

This integrated fresh spinach sorting system features Key's Manta 2000 series sorter equipped with three top-mounted Vis/IR (visible infrared) cameras, two bottom-mounted Vis/IR cameras, and two fluorescence-sensing lasers. The high-definition cameras recognize color, size, and shape to detect a wide range of leaf defects including mechanical damage such as bruising, decay such as light decay and wilting, color defects such as yellow caused by sunburn, and more. The lasers identify differing levels of chlorophyll to detect FM such as insects, larvae, weeds, tree leaves, and more. When sorting chopped cabbage, romaine, or iceberg lettuce, the laser is also configured to detect and reject core. The two-sided viewing capability of Key's Manta 2000 is essential to ensure no FM or defects are hidden.



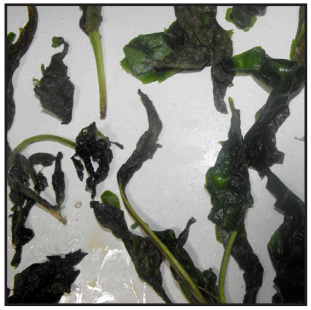
Manta® Sorter Configuration

Capacity for Sorting Lines

	Iceberg/Romaine	Spinach
Max Capacity (finished product)*	5,500 kg/hr 12,000 lbs/hr	5,900 kg/hr 13,000 lbs/hr

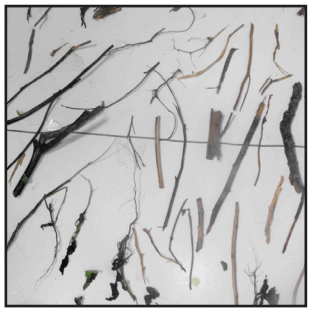
* *Varies depending on defect load*

Typical Defects and FM:


Rot


Insects


Foreign Material


Sticks


Weeds


Tree Leaves

Call Key for price and delivery information

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