DESIGNED FOR SORTING

Color & Laser Sorting Systems
Optyx®
Tegra®
Manta®
FM and defects don't

For decades, food processors around the world have depended on Key to know what it takes to make a sorter perform. Our food industry experience and engineering knowledge make for powerful technology that gives you the ability to understand and control your product flow.

Rely on the critical elements of a Key sorter to stop foreign material (FM), extraneous vegetable matter (EVM) and defects from making it to the consumer – and ensure quality, yield and the highest level of food safety.

Product Presentation

- Single, uniform layer of product
- Even spacing for optimum viewing
- Aligns/orients as required
- Stabilizes product at up to 3 m/second (600 ft/minute)

Structure & Support Systems

- All-stainless steel construction
- Sanitary design, sloped surfaces, minimal laminations
- Engineered for rigorous factory conditions
- On-board air/water preparation
Intelligence (control)
- Object-based image processing
- Contour ejection
- Valve activity tracking
- Foreign material tracking (FMAlert™)
- Intuitive operator interface

Imaging
- Sub-millimeter spatial resolution
- Lasers: multi-spectral, depending on application, including FluoRaptor™
- Cameras: patented tri-chromatic (RGB, RGIR, RBIR, RCIR)
- Lights: HID, LED or UV

Ejection
- Precision pneumatic-based valves
- 3-way sorting capability
- Ejector spacing designed for minimum collateral damage
SORTER INTELLIGENCE
Delivering value to your product and your process

Key innovations provide important levels of control from the sorter’s vantage point, including smart, fast decision-making based on color, shape and size for defect removal. In addition, depend on remote monitoring and real-time data gathering that enable on-the-fly process adjustment to optimize your line.

Advanced Object-Based Image Processing

Cameras and lasers work singly or in powerful combination to distinguish good product from defects and FM by color, shape, texture or fluorescence. The G6 platform provides data for optimal product/defect separation – and instant action – via digital enhancement.

Shape Sorting – Customer-specific shape algorithms, available on-menu or user-specified, can be applied – including length, width, curvature, symmetry, circularity and other special shape characteristics.

Foreign Material Event Tracking

FMAalert™ enables sorters to capture and store a digital time-stamped and date-stamped image of every object identified as foreign material or other pre-defined class.

Contour Ejection

Higher removal accuracy and minimized yield loss result from “intelligent ejection” of select defects. Ejector valve operation is mapped to the contour of objects, allowing removal of large defects and hole-shaped items such as washers and rings.
**RemoteMD™ Real-Time Condition Analysis**

Web-based diagnostic innovation proactively monitors sorter condition and alerts plant personnel to changes that impact performance, reliability and maintenance. Ensures highest sorter availability and productivity.

**Self-Monitoring Capability**

Valve Activity Tracking monitors firing frequency of the sorter’s valves. If the level exceeds a pre-set threshold, a task is triggered – such as “sound alarm horn” or “activate cleaning system.”

**Sorter Support**

Ethernet Connection via OPC between the sorter and control room reduces need for personnel on the factory floor. Useful for:
- product/defect statistics
- machine control, including changeover
- machine status

**Laser Technologies**

Key’s Raptor Laser Technology penetrates product to identify differences in material properties. The way the laser interacts with each object allows precise characterization of good product, defects, FM and EVM.
- advanced image processing algorithms provide unprecedented detection of subtle signals; for example, soft berries, such as blueberry or cranberry, are distinguishable from good berries or sub-surface pit in dried stone fruit
- captures 12 million data points per second
- sub-millimeter laser spot size and resolution
- multiple-wavelength lasers increase FM and defect detection in processed and fresh-cut vegetables

FluoRaptor™ Laser
- detects varying levels of chlorophyll to separate FM (including that of similar color) and EVM from good product
- changeover from peas to corn or other products in seconds
**ON-BELT SORTERS**

**Optyx® and Manta®** on-belt color and laser sorters are characterized by exceptional color, shape, size and texture recognition, application-specific intelligence and a wide range of capacities. These versatile, modular sorters are capable of combining a variety of cameras with Raptor or FluoRaptor™ lasers for thorough FM / EVM removal. Each can use FMAalert™ and OPC communications to further safeguard consumers and enhance the value of your brand.

**Optyx® 3000**

Scan width: 610 mm (24 inches)
Capacity: 6 metric tons (13,000 lbs)/hour*

**Optyx® 3000 on-belt sorter features:**
- Color sorting
- HID, UV lighting
- Laser sorting
- Combination laser & color sorting
- Up to 5 different camera configurations
- Single and/or two-sided viewing
- Optional ultra-high-resolution camera
- Belt speeds up to 3 m/sec (600 ft/min)
  - Variable speed
  - Self-tensioning (auto)
  - Quick/easy change
- Integrated and automatically controlled clean-in-place (CIP) system(s)
- Air and water prep on board
- Integrated UPS power conditioning
- Integrated CIP blowers and starters included (if required)

**Case in Point:**

**Optyx® 3000** is used by green bean processors to re-sort the defect streams of other sorters and increase yields.  
**Result:** Improved yield.

www.key.net
Optyx® 6000

**Case in Point:**

Optyx® 6000 FluoRaptor™ enabled processors to cut uncored iceberg and romaine lettuce heads with conventional technology, then use the sorter to remove the core.

Result: Reduced labor costs, higher yield, longer shelf life.

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**Scan width:** 1219 mm (48 inches)

**Capacity:** 12 metric tons (26,500 lbs)/hour*

Optyx® 6000 on-belt sorter features:

- Color sorting
- HID, UV, LED lighting
- Laser sorting
- Combination laser & color sorting
- Up to 15 different camera configurations
- Single and/or two-sided viewing
- Belt speeds up to 3 m/sec (600 ft/min)
  - Variable speed
  - Self-tensioning (auto)
  - Quick/easy change
- Integrated and automatically controlled clean-in-place (CIP) system(s)
- Air and water prep on board
- Integrated UPS power conditioning
- Integrated CIP blowers and starters included (if required)

Typical Product Applications for Optyx® 3000 and 6000:

- cereal
- confectionery
- dry beans
- fresh-cut (including core removal)
- fruit
- nuts
- potatoes (chips/crisps, whole, dices, slices, strips, wedges)
- prepared foods
- raisins
- snack foods
- vegetables
- wet or dry products

* Depending on product and defect load
ON-BELT SORTERS

Manta® High-Capacity Sorters

<table>
<thead>
<tr>
<th>Series</th>
<th>Scan Width</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1600</td>
<td>1520 mm (59.8 inches)</td>
<td>15 metric tons (33,000 lbs) /hour*</td>
</tr>
<tr>
<td>2000</td>
<td>2000 mm (79 inches)</td>
<td>20 metric tons (44,000 lbs) /hour*</td>
</tr>
</tbody>
</table>

Manta® high-capacity on-belt sorter features:
- Color sorting
- HID, LED lighting
- Laser sorting
- Combination laser & color sorting
- Up to 14 different camera configurations
  - Single and/or two-sided viewing
  - Belt speeds up to 3 m/sec (600 ft/min)
    - Variable speed
    - Self-tensioning (auto)
    - Quick/easy change
  - Integrated and automatically controlled clean-in-place (CIP) system(s)
  - Air and water prep on board
    - Chiller included on 2000 Series systems
    - Chiller sold separately on 1600 Series systems
  - Integrated UPS power conditioning

Typical Product Applications:
- carrots • cut corn • green beans (cut, whole)
- peas • diced peaches • diced pears • potatoes (frozen strips, wet strips, chips/crisps)

Designed for Sorting

CASE IN POINT:

A major US vegetable processor is able to run full factory line-flow of cut green beans through Manta® at over 40,000 lbs/hr, and successfully remove a specific defect that other sorters could not detect.
Result: Increased overall value.
**IN-AIR SORTERS**

**Tegra® In-Air Sorters**

Tegra® is the ultimate sorter for diced and sliced fruit and vegetables. It uniformly launches product from its non-damaging, gravitational C-Belt® conveyor—while up to four high-performance cameras get unobstructed views of every surface.

### 7750 Series

**Scan width:** 750 mm (29.5 inches)
**Capacity:** 7.5 metric tons (16,500 lbs)/hour*

### 7770 Series

**Scan width:** 1500 mm (59 inches)
**Capacity:** 15 metric tons (33,000 lbs)/hour*

**Tegra in-air sorter features:**
- Color sorting
- Fluorescent, UV, LED lighting
- Up to 4 different camera configurations
- Single and/or two-sided viewing
- C-Belt speeds up to 3 m/sec (600 ft/min)
- Variable speed
- Integrated and automatically controlled clean-in-place (CIP) system(s)
- Air and water prep on board
- Integrated UPS power conditioning

**Typical Product Applications:**
- vegetables (diced, sliced)
- fruit (whole, sliced, diced)
- potatoes (strips, slices, dices, wedges)
- candy
- coffee beans
- nuts
- snacks

* Depending on product and defect load

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**Designed for Sorting**

**CASE IN POINT:**

**Color sorting** sliced peaches on Tegra® allowed a processor to pack glass jars by color for uniform appearance and high customer appeal.  
**Result:** Increased marketability.
Online Sorter Diagnostics for Real-Time Analysis and Response

RemoteMD™ is Key’s secure, web-based condition monitor, able to detect potential problems, assess the status, provide alerts and initiate remote service sessions. If in-person attention is required, the technician can arrive armed with the necessary parts.

- Improves productivity / decreases downtime
- Enhances maintenance efficiency
- Reduces in-plant service calls

PROliance™ protection plans provide three levels of support for Key optical and laser sorters – our promise to be your partner in maximum optimization and performance, investment protection and peace of mind.

Online Training for Peak Performance

Your in-plant team is integral to quality and productivity. Now you can strengthen this asset with interactive, online training courses for operators, supervisors, technicians and maintenance staff:

- 20-minute-or-shorter modules
- Self-paced, on-demand
- Reduce training costs
- Validate job skills
- Tailor to employees’ roles
- Improve operating efficiencies
- Prove compliance with regulations

This convenient and cost-effective training opportunity is ideal for new employees, as well as for certifying and re-certifying staff skills.

Ask about how you can improve productivity, reduce downtime and eliminate waste by making every “class” convenient and customized.
### SPECIFICATIONS

#### CAPACITY

<table>
<thead>
<tr>
<th></th>
<th>Optyx</th>
<th>Tegra</th>
<th>Manta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scan Width</td>
<td>610 mm (24&quot;)</td>
<td>1219 mm (48&quot;)</td>
<td>750 mm (29.5&quot;)</td>
</tr>
<tr>
<td>Capacity* (approximate)</td>
<td>610 mm (24&quot;)</td>
<td>12 metric tons/hour</td>
<td>7.5 metric tons/hour</td>
</tr>
<tr>
<td></td>
<td>13,000 lbs/hour</td>
<td>26,500 lbs/hour</td>
<td>16,500 lbs/hour</td>
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#### DIMENSIONS

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<thead>
<tr>
<th></th>
<th>A - Width</th>
<th>B - Length</th>
<th>Height</th>
<th>Infeed Elevation</th>
<th>Discharge Elevation</th>
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<tbody>
<tr>
<td></td>
<td>1198 mm (47-3/16&quot;)</td>
<td>2815 mm (111&quot;)</td>
<td>2272 mm (89-7/16&quot;)</td>
<td>1207 mm (47-1/2&quot;)</td>
<td>1023 mm (40-1/4&quot;)</td>
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<td>2080 mm (82&quot;)</td>
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<td>2413 mm (95&quot;)</td>
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<td></td>
<td>2143 mm (84-1/4&quot;)</td>
<td>2515 mm (99&quot;)</td>
<td>2438 mm (96&quot;)</td>
<td>2007 mm (79&quot;)</td>
<td>1067 mm (42&quot;)</td>
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<tr>
<td></td>
<td>2753 mm (108-1/6&quot;)</td>
<td>2515 mm (99&quot;)</td>
<td>2438 mm (96&quot;)</td>
<td>2007 mm (79&quot;)</td>
<td>1067 mm (42&quot;)</td>
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<td>2397 mm (94&quot;)</td>
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<td>2705 mm (106-1/2&quot;)</td>
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<td>1000 mm (39&quot;)</td>
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<td>2892 mm (113-7/8&quot;)</td>
<td>4215 mm (166&quot;)</td>
<td>2719 mm (107-1/4&quot;)</td>
<td>1384 mm (54-1/2&quot;)</td>
<td>1023 mm (40-1/4&quot;)</td>
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#### UTILITIES

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<tr>
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<th>Power**</th>
<th>Air***</th>
<th>Water****</th>
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<tbody>
<tr>
<td></td>
<td>3 KVA</td>
<td>9 KVA</td>
<td>9 KVA</td>
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<tr>
<td></td>
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<tr>
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<td>10 KVA</td>
<td>10 KVA</td>
<td>10 KVA</td>
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<tr>
<td></td>
<td>97 Nm³/h (50 scfm)</td>
<td>197 Nm³/h (125 scfm)</td>
<td>158 Nm³/h (100 scfm)</td>
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<tr>
<td></td>
<td>79 Nm³/h (50 scfm)</td>
<td>79 Nm³/h (50 scfm)</td>
<td>158 Nm³/h (100 scfm)</td>
</tr>
<tr>
<td></td>
<td>19 lpm (5 gpm)</td>
<td>19 lpm (5 gpm)</td>
<td>19 lpm (5 gpm)</td>
</tr>
</tbody>
</table>

* **MAXIMUM PEAK-LOAD REQUIREMENT, depending on product and defect load**
** Average power consumption; system requires a 60amp service
*** Nm³/h (normal cubic meters per hour) European standard unit for air flow
**** Amounts listed are maximum; systems typically regulate to lower flows

Optyx, Manta, Tegra, FluoRaptor and C-Belt are registered trademarks of Key Technology.
Call us, meet us, visit us online.

From fresh-cut to fresh fruit, vegetables to snacks, a Key sorter will help you remove defects and foreign material at high production speeds, while reducing labor costs and improving quality, yield and safety. We look forward to working with you to protect your customers and your brand.

CLICK or CALL today for innovative, efficient, high-yield processing technology. It’s Key.

www.key.net

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