

Crux Agribotics is a proud member of



Kind Technologies is a Dutch AgTech group with over 150 highly educated employees, primarily engineers and technicians. As an original equipment manufacturer (OEM) in the Agritech industry, Kind Technologies operates worldwide.

Kind Technologies delivers advanced automation with Robotics, Computer Vision, Data & AI. Systems and IP are developed inhouse and delivered turn-key around the globe, including value added integration and support services. Together we enable a world where plants, fruits and vegetables are better distributed, and advanced automation technology addresses overall resource scarcity. We call that mission: Be Kind to the World!



Leading brands within our group are:



Crux Agribotics develops and integrates advanced automation systems for the horticulture and fresh produce markets. A growing world population, combined with scarcity of resources, raises the complications of our future food chain. There will not be enough workers, land, water and fertilizers to feed all the mouths of the world unless we change the way we grow, produce and process food.

A controlled packaging process with increased yields and minimized waste are essential to secure continuity and are the basis of sustainable and profitable growth.

Crux Agribotics is a manufacturer of automation systems for handling fruits and vegetables. Its award-winning SortiPack® system for automatic weighing, sorting and packing is a game changer in the horticulture market, replacing traditional and labor intensive processes in the packing hall. The technology includes advanced robotics, computer vision, data and artificial intelligence (AI).





A modular robotic system for automatic Grading, Sorting and Packing of fruits and vegetables.

- Handles a broad range of fruits and vegetables.
- Computer Vision combined with machine learning for grading and sorting algorithms optimizes per package, in terms of uniform presentation and package weight.
- Gripper technology designed per crop type to ensure gentle handling.
- All data available for real-time and offline processing.

With our advanced Robotic systems we enable growers to reduce dependency on human labor which is increasingly scarce and costly. SortiPack® handles products in a more consistent, safer and more hygienic manner while also being gentler than traditional ways of sorting, thus reducing damages. Yields are optimized due to increased packing efficiency and reduction of waste and give-away. Packaged product looks more uniform and the advanced grading functionality causes optimized package weight which results in an optimal price per package.

All data which SortiPack® constantly accumulates (such as color, size, volume, weight, origin and packing location) is available real-time and offline. This data can be used going forward into the supply chain, i.e. track and tracing, but can also be used to optimize process control in the growing processes. The system can operate 24/7 making it more flexible to deal with peaks and seasonal trends. As the system is based on a self-learning architecture it uses real-time product data to provide proactive feedback on sorting settings which enables growers to adjust sorting and grading parameters on the go to optimize package accuracy and reduce waste.

## Advantages of SortiPack®

- Saves dependency on- and costs of human labor.
- Increased hygiene and extended shelf life due to no human touch and gentler handling / reduction in damages.
- Real time weight optimization per package (minimal give away weight or rework).
  - Continuous feedback loop and automatic volume/weight calibration.
- Data driven recommendations by software & all data available per product/sorting class.
- Individual product / package data for export / analysis / reporting.
  - Real-time yield analysis for optimized class settings.
  - Enhanced Tracking & Tracing.
- Increased flexibility and scalability (up to 24/7 operations).



## Applications

### SortiPack® beef tomatoes

The SortiPack® system for beef tomatoes will scan and classify tomatoes directly from the harvest crates, thus eliminating the need to tip and possibly inflict damages. Making use of the data gathered and the classification done on the infeed, beef tomatoes are picked with robots from the harvest crates and packed into the correct customer package (box / crate / punnet) for each class. SortiPack® can pack multiple tomato sizes simultaneously. Completed customer packages will be transported to the palletizing area and emptied harvest bins will be stacked and automatically redirected to the harvest carts to be re-used.

### SortiPack® sweet pointed pepper

SortiPack® for pointed peppers makes use of integrated weighing belts to accurately determine the weight of each pepper. After weighing, peppers will be scanned to gather information such as; curvature, length, orientation, etc. A combination of weight and other aspects (flexible) will classify the peppers accordingly.

Product will then be packed into the desired package(s) such as; onto trays, in flowpacks/ bags, and in boxes/ crates. The packaging of multiple packages simultaneously is also possible.

### SortiPack® cucumber

Harvest crates or bulk containers are automatically tipped. Singled cucumbers are offered to the SortiPack® system. The SortiPack® system for cucumbers is able to classify and sort cucumbers based on weight. The system packs the cucumbers directly in customer packages (boxes / bins / trays / punnets) with robots. SortiPack® can pack multiple cucumber sizes at the same time. Completed customer packages are transported to the palletizing area and emptied harvest bins are stacked and automatically placed on the harvest carts to be re-used.

### SortiPack® chicory

Individual chicory crops are offered to the SortiPack® system. SortiPack® grades the individual chicory crops by making use of integrated scales and computer vision. The software algorithm is then able to create the ideal combination of the desired number of products out of the multitude available in order to create a 'perfect' package combination. This results in minimized give-away / waste.

Due to chicory being a very fragile product, Crux Agrobotics has developed a specific 'chicory gripper' which ensures that the product is handled gently and thus does not suffer any internal nor external damages.

This SortiPack® chicory system, is a single robot cell solution with a compact footprint, especially designed to be integrated in small working areas. This system is also suited to sort and pack other kind of fruits and vegetables such as sweet pointed pepper, parsnip and sweet potatoes.

### Other

In addition to the crops described, SortiPack® can be used for a large variety of fruits and vegetables. Due to its modular architecture, SortiPack® can be adapted to fit your specific process, product type or volumes. If you see an opportunity for SortiPack® to optimize your processes, please reach out to us. We can test your product and make simulations representing your process and situation.

