



Maximum yield Consistent quality

Innovative optical sorting solutions
for nut processors

 **optimum**
SORTING

OPTIMUM SORTING



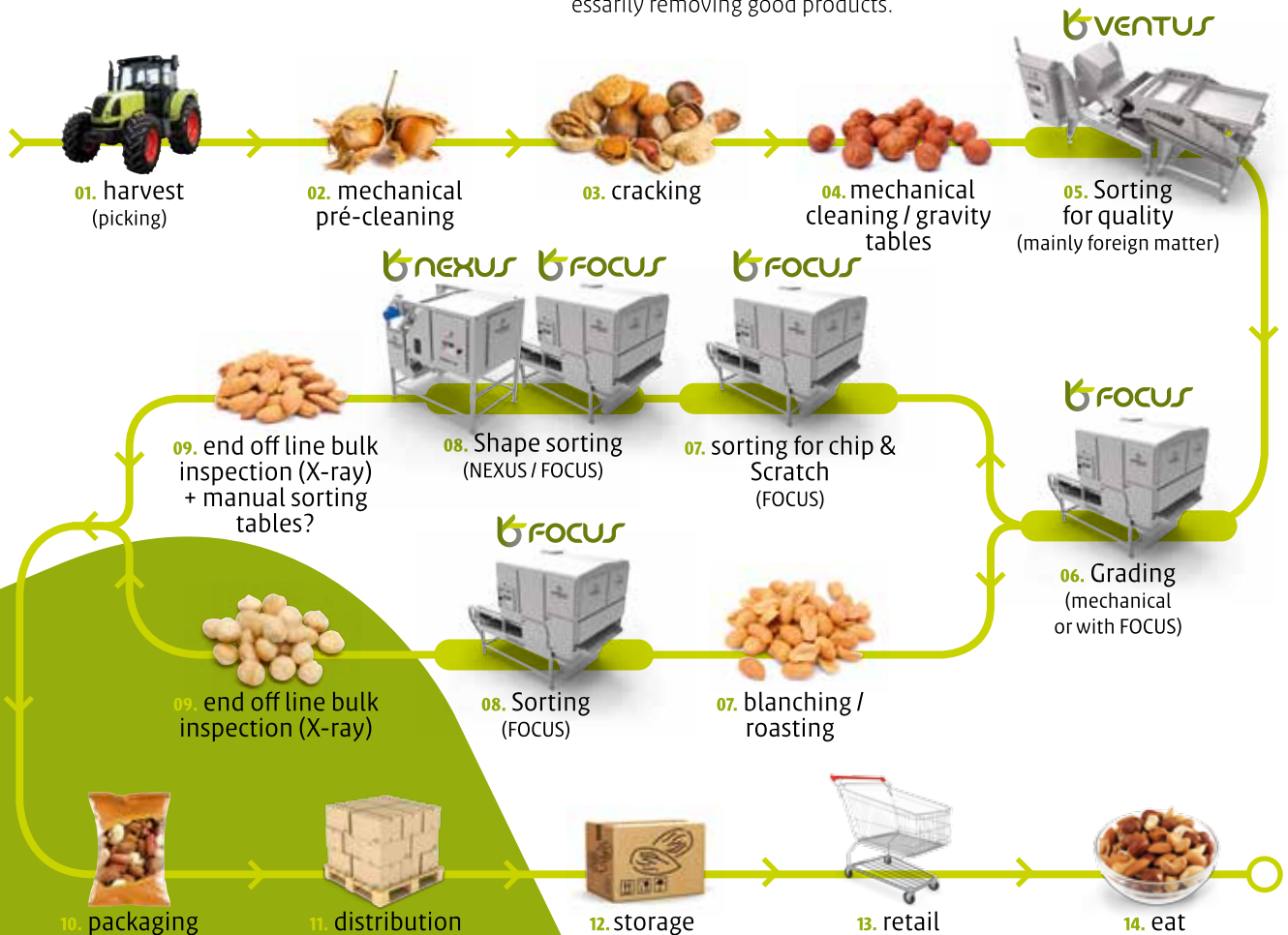
YOUR CHALLENGE

As a processor you want to offer a quality product to your customers that reflects the highest standards in the industry while making sure you create the highest possible yield. Whatever your produce might be, tree nuts or groundnuts, the challenge remains to deliver the perfect product to your customers.



A piece of shell, glass or a stone? A rancid nut? Food safety regulations are being tightened worldwide and consumers have also become more demanding. The presence of foreign materials or inferior products is not only a matter of food safety - in times of growing competition, quality problems can be downright harmful to your reputation. Unfortunately, you cannot control the condition of the raw material, as no two seasons are the same. However, you do want to offer consistent quality to your customers.

In short, it's important to optimize your sorting process: to detect as many foreign materials and defects as possible and without unnecessarily removing good products.



**/// OPTIMUM SORTING:
TO DETECT AS MANY DEFECTS
AS POSSIBLE, WITHOUT
UNNECESSARILY REMOVING
GOOD PRODUCTS ///**



OUR SOLUTION

A chain is only as strong as its weakest link. You can be sure of one thing: Optimum Sorting systems will never be the bottleneck in your production line.

The VENTUS, FOCUS and NEXUS offer solutions for different steps in the production process, whether it's for walnuts, almonds, hazelnuts, pecans, pistachios, cashews,...etc. Raw, roasted or blanched, whole or pieces.

These optical sorting machines are the result of extensive research and development. They use a sophisticated combination of advanced cameras and lasers, with multidimensional image processing for superior quality, size, shape and length sorting. High-resolution cameras detect discoloration and size and shape deviations, while laser sensors detect foreign objects. Special lasers can sort by biological characteristics, such as the presence of micotoxines. SWIR or Short Wave

InfraRed lasers can be combined with other lasers for optimal foreign body detection. InGaAs camera technology can also offer an alternative to SWIR lasers.

Our sorting systems easily adapt to the required quality specifications and you can choose between two-way or three-way sorting. Using a unique, 2400 mm maximum scan width, the FOCUS not only offer greater capacity than other systems, the extra width ensures that the products to be sorted are more distributed across the inspection zone, allowing defective ones to be removed more accurately and reducing the risk of false rejections.

If you want accurate sorting, according to the quality specifications of your customers, but not at the expense of your yield, then choose Optimum Sorting. Guaranteed ROI!

YOUR OPERATIONAL RELIABILITY = OUR SERVICE



Integration

To integrate your solution, we rely on our network of specialized partners. After all, every production line is different and requires a tailor-made approach.



Training

We train your operators at your place, at the installation site or in our offices, so that they can optimally use your sorting systems.



Remote access

Our service engineers can be reached 24/7, by phone or E-mail. Thanks to secure remote access, they can quickly make a diagnosis and if necessary, immediately decide to arrange an on-site intervention.



Customized SLA

No maintenance contracts are needed to make sure you get the best available service for your installed sorters.



CHOICE OF SEVERAL SYSTEMS



NEXUS

As a freefall camera sorter, the NEXUS is extremely compact. It has fewer moving components than conveyor belt sorters and therefore requires even less maintenance. But above all, during their fall, products may be viewed along two opposite sides, resulting in more accurate sorting. The nexus can be used as a low cost solution for sorting based on color and shape.

The NEXUS is available in different scan widths, up to 1200 mm, and is equipped with durable and energy-efficient LED lighting that produces little heat.

The controlled, vibrating feed with sieve ensures that the products to be sorted are better distributed, allowing them to be analyzed more accurately and reducing the risk of false rejections. In addition, an optional sieve removes any small pieces and impurities - a form of pre-sorting.

By default, the NEXUS features four advanced high-resolution color cameras and smart, specialized algorithms for shape recognition, resulting in superlative defect detection and excellent good-to-bad ratio. Two optional RGBi cameras maximize sorting accuracy.

Do you want to sort even more accurately? Then choose a scan width of 1200 mm and use the DRS sorting mode (Defect Return System mode): the rejected products are put into a re-sorting stream and inspected for a second time. Any incorrectly rejected candy may then still be accepted. The result: a naturally superior good-to-bad ratio and a higher yield.

- compact freefall sorter
- durable LED lighting
- advanced cameras
- smart algorithms
- internal re-sorting stream (DRS)
- excellent good-to-bad ratio

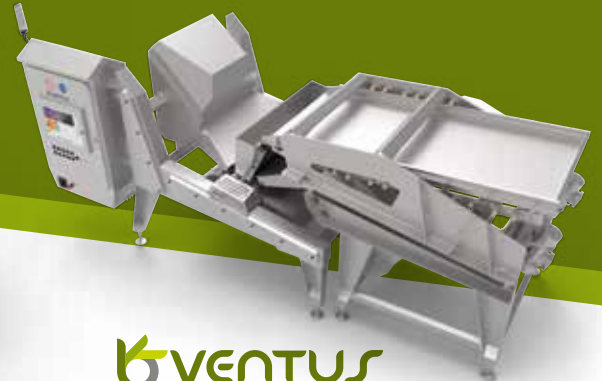


FOCUS

The FOCUS is an optical belt sorter that is ideally suited for sorting different kind of nuts where color and shape sorting is needed. With a maximum scan width of 2400 mm, it's the largest optical belt sorter on the market. Depending on the width and the application, it's equipped with 3, 6 or 9 advanced high-resolution cameras for optimum defect detection which in combination with the high pitched ejectors result in an excellent good-to-bad ratio in the reject stream. Using the optional laser sensors (up to 8 laser signals) you can increase its defect detection and sorting accuracy even further.

But that's not all: the FOCUS may be expanded with a unique camera configuration. The additional cameras are arranged in such a way that five of the six sides of each object are always shown perpendicularly. And thanks to smart use of IR lighting underneath the product flow, the measurements are not disturbed by possible discoloration or debris on the conveyor belt. The result: a significant improvement in your sorting efficiency of the accepted products and better good-product-to-bad-product ratio in the reject stream.

- widest optical belt sorter
- excellent good-to-bad ratio
- unique camera configuration
- extended with laser option



VENTUS

The VENTUS is a full surround freefall laser sorter specially designed for dried fruits and nuts. It's the workhorse for eliminating any unwanted materials in your product. It is available in different scan widths up to 1800 mm, and is equipped with stable and reliable lasers that generate the light for the sorting process. The Ventus can be equipped with up to 16 lasers and 32 detectors. Laser system at scan rates of + 3300 scans per second resulting in the highest available resolution for a laser sorter. The signals from the laser detectors are simultaneously analysed by our MDL (Multi Dimensional Laser) system, outperforming any multispectral systems on the market. Depending on your needs it can be equipped with small pitch ejectors (4,6mm) to achieving an excellent good-to-bad ratio in the reject stream, even with your smallest products.

- Multi Dimensional Laser detection
- Ultra stable and reliable
- Workhorse
- Fine pitch ejectors





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Multidimensional image processing

Most image processing algorithms reduce the RGBi signal of a colour camera from four to two dimensions. This may result in the loss of valuable information. All signals, both from the cameras and from the different lasers, are interpreted simultaneously by means of our algorithms, resulting in a more accurate detection of foreign objects and defects, plus a lower risk of false detections.

Precision ejection system

Accurate defect detection is pointless without an equally accurate ejection system. The distance between our air ducts, centre-to-centre is 7.5 mm instead of the usual 10 mm. Thus there are more ducts that are able to blow more effectively and that improves the ejection accuracy. There is also a high-resolution valve system with a centre-to-centre distance of 4,6 mm for specific applications. Optionally, also a double reject system is available resulting into a 3-way sort.

Data view

Why not use the data recorded by the cameras or lasers to adjust your sorting process where necessary? An optional module that filters data to parameters of your choice - length, shape, colour, defect level, etc. - and makes them available to your operators in a clear numerical or graphical way, so that they can intervene if desired. This module lays the basis for 'sort to spec'.

EXCEPTIONAL USER-FRIENDLINESS

Visual calibration

Setting acceptance thresholds is often time-consuming and complex. This is not the case with Optimum Sorting systems. Your operators no longer have to work with graphs or formulae themselves. Our machines are able to calibrate themselves by using images of acceptable and unacceptable products.

Intuitive GUI

Operating our sorting machines is child's play, thanks to an intuitive GUI. Your operators see all relevant information at a glance.

Remote control

If you want to operate your sorting machines centrally, then no problem! Our solutions are easily integrated into your network, so that your operators and supervisors can keep an eye on things from any network computer.

SUPERIOR HYGIENE AND EFFICIENCY

Optimum Sorting systems are made from stainless steel and all components to be cleaned are easily accessible. This way hygiene is guaranteed and cleaning costs you hardly any time and effort. Moreover our machines are designed in such a way that any contamination has no impact on the sorting.

Furthermore, they excel in stability, which means that your sorting process requires virtually no manual intervention. You can switch from one product to another or from one specification to another with just one press of a button. And finally, their sturdy construction offers you a maximum uptime with minimum maintenance.





MODULAR DESIGN

Customization is no problem! Their modular design means that our sorting systems may easily be adapted to your specific requirements. Moreover, they are field-upgradable so that they can grow with the needs and opportunities of your organization, together with our latest technology.

■ standard ○ option × not available

		FOCUS	NEXUS	VENTUS
Type		belt sorter	Camera freefall sorter	Laser freefall sorter
Application		all tree and groundnuts (shape & color)	Walnuts, Almonds (shape sorting)	all tree and groundnuts
Width		600 mm, 1200 mm, 1800 mm or 2400 mm	1000 mm, 1200 mm	600 mm, 900 mm, 1200 mm or 1800 mm
Camera	both RGB and iRGB	■	■	×
	InGaAs	×	○	×
Laserbox	IR, SWIR, VIS, Fluorescence	○	×	■
MULTI angle configuration		○	×	×
Sorting mode		Two-way or three-way	Two-way or three-way	Two-way or three-way
Air valves	4,60 mm	×	×	○
	5,26 mm	×	×	○
	5,00 mm	○	○	×
	7,50 mm	■	■	■
	10,00 mm	×	×	○
Data view *		○	○	○

* : This module is being continuously developed. Contact us for an up-to-date overview of the functionalities.



More information?

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