

# NUTS

# HIGH THROUGHPUT, CONSISTENT QUALITY

The production of safe products are key to customer loyalty and satisfaction. And that's exactly where you, together with TOMRA, can make the difference and increase your return while working on the creation of competitive advantage.

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## **SORTING IS VITAL**

Undesired visible and invisible contaminations spoil the quality of your product. Through high capacity inspection you increase your yield, optimize the quality of the end product and limit food waste.

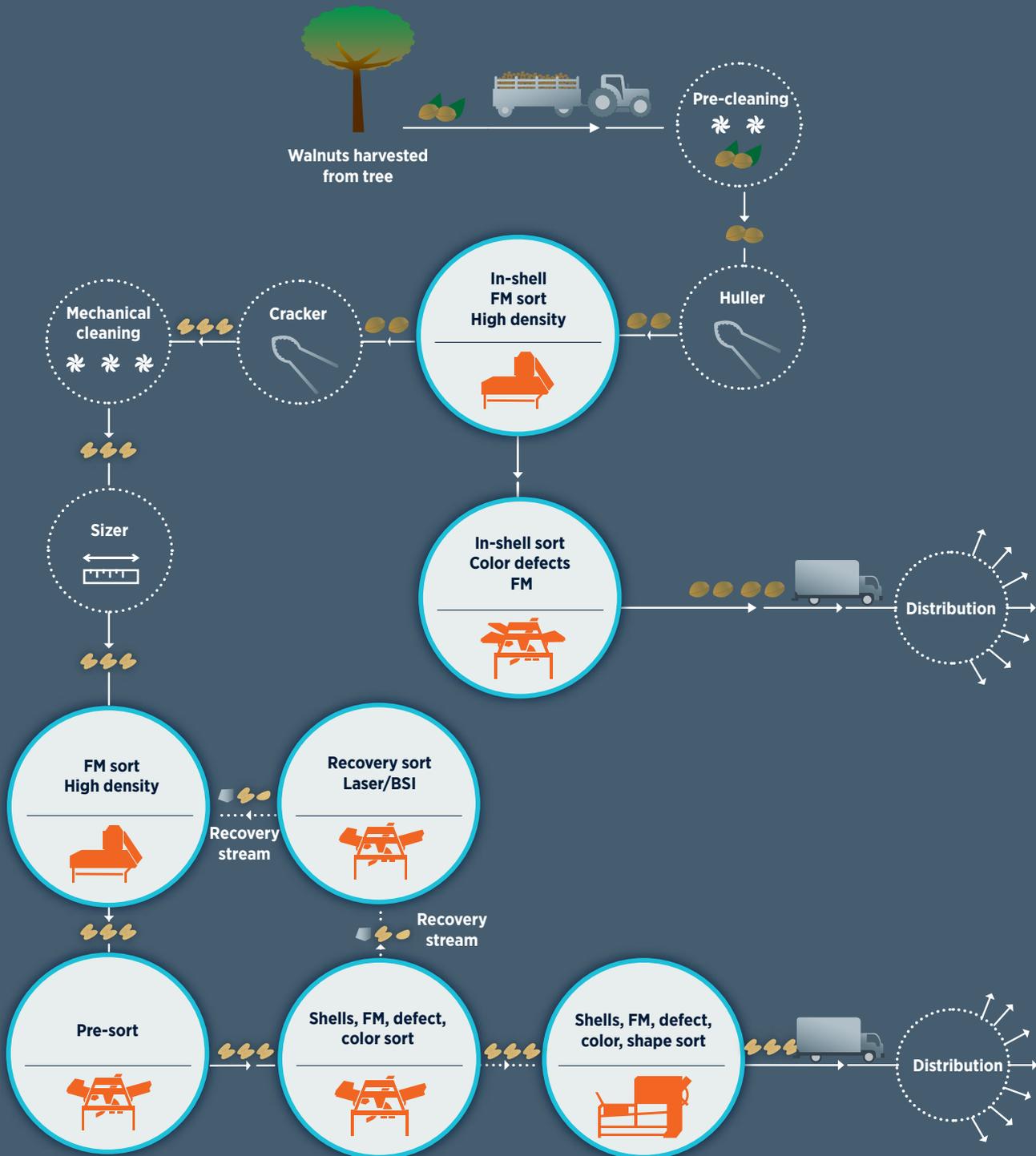
All resulting in a higher return and increased level of customer satisfaction. Working closely together with our customers we are committed to unlock the future.



**Applications:**  
almonds, cashews,  
hazelnuts, macadamias,  
peanuts, pecans,  
pistachios, walnuts,  
...

# SENSOR-BASED SOLUTIONS, FROM FARM TO FORK

Depending on the production environment, throughput and other specific requirements, we design the most efficient line lay-out. The actual machine configuration is defined after extensive testing and based on TOMRA's experience with similar nut processors.



TOMRA offers a wide variety of machines for every stage in the processing line and every budget.

# BENEFITS

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## **FOOD SAFETY**

The market holds a zero-tolerance policy when it comes to foreign material in food, in this case nuts. Apart from the visible defects and unwanted material TOMRA sorters also remove toxins invisible to the human eye, but equally as dangerous and unhealthy.

## **YIELD MAXIMISATION**

TOMRA heavily invests in environmental friendly solutions, optimizing the use of the world's resources. In this light our technologies enable the recovery of waste streams by creating a third output which can be used for a variety of products.

## **CONSISTENT PERFORMANCE**

40 years of continuous investments in R&D and product management, in combination with the highly valued feedback of our customers, allows TOMRA to further optimize its technologies. This optimization guarantees a consistent performance and output quality.

# TECHNOLOGY

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## **LASER**

The combination of a number of different pulses (targeted frequency illumination) inspecting objects in the RGB and IR spectrum enable the detection of the subtlest color differences and enhance foreign material detection. Benefits are numerous: calibration-free, stability, long life-time, high resolution, less heating.

## **CAMERA**

Recognition of materials based on color, biological characteristics and shape is guaranteed thanks to the use of cameras. Their capabilities go beyond the visible spectrum and include infrared, ultraviolet and other spectra. TOMRA has developed exclusive high resolution cameras with an adapted spectrum, ideal for optical food sorting.

## **BSI**

Allows the examination of food products using light beyond the visible spectrum, into the near-infrared region. TOMRA's BSI technology inspects the characteristics of the product and can identify certain chemical and molecular differences and changes on the surface and within the objects being inspected.

## **X-RAY**

X-ray technology detects on product density, irrespective of size, moisture or pollution level.



“The machine simply functions, that makes our day. And we have a lot of good days!”

Larry Milliner,  
Vice President of Operations,  
**Sessions Company**

“Maintenance, cleaning etc. is accessible, quick and poses no risks to the working, functioning parts of the machine.”

Philip Potgieter,  
Owner,  
**Macridge**

“Their support might be better than their machines are, and that says a ton because the machine itself is super.”

Bryan Willis,  
**Damascus Peanut Company**

“With the Helius, our confidence in producing a clean, high-quality end product has increased. We see payback on this unit in about two years.”

Ross Burling,  
General Manager,  
**Processing Stahmann Farms  
Toowoomba plant**

## ADVANCED SORTING PARAMETERS

- Gross
- Good
- Excellent

	Performance NIMBUS	High performance NIMBUS BSI	High performance GENIUS	XXXX IXUS
Technology	LASER	LASER & BSI	CAMERA & LASER	X-RAY
Rejection	2 way	2 way	2-3 way	2 way
Detailed size/ geometry			●●●	
Detailed shape			●●●	
Subtle color	●●	●●	●●●	
Subtle blemish	●●	●●	●●●	
Subtle defect	●●	●●	●●●	
Damage	●	●	●●●	
Moisture	●●●	●●●	●	
Biological characteristics	●●●	●●●	●●	
Foreign material	●●●	●●●	●●●	●●
Advanced Foreign Material Detection	●●●	●●●	●●●	
Stones	●●●	●●●	●●●	●●●
Density				●●●
Data	Yes	Yes	Yes	Yes

# OUR SORTING SOLUTIONS



●●●●○ FUNCTIONALITY  
 ●●●●○ THROUGHPUT  
 ●●●●○ FLEXIBILITY

## NIMBUS

The Nimbus ensures the delivery of safe and healthy food by removing any unwanted discolorations, foreign material, deformed products and so on. The new generation of free-fall sorting solutions combines the efficiency of laser detection and camera technology. In addition to these conventional sorting methods, the Nimbus is also able to sort based on biological characteristics, such as mycotoxins (Detox™).

Moreover, the sorter can be equipped with a hyperspectral camera (Biometric Signature Identification). This **Nimbus BSI** can identify the material's unique fingerprint. The ejection system uses an optimal pitch for enhanced removal of defects. The Nimbus can be equipped with a Front (FES) or Rear Ejection System (RES) for greater flexibility, lower false reject and improved yield.



●●●●○ FUNCTIONALITY  
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 ●●●●○ FLEXIBILITY

## GENIUS

The Genius removes all unwanted discolorations and foreign material from a range of nuts. Thanks to the Genius you will be able to ensure the production of safe and excellent quality food! The Genius is a modular food sorting machine that can be tailored to your unique requirements and needs. With high resolution cameras and lasers, the Genius sorter offers a variety of inspection technologies in different inspection zones. This way, the Genius achieves an unequalled

food sorting performance. After being scanned in the inspection zones, the state-of-the-art air guns reject any defect within milliseconds in 2 or 3 separate streams. The good product proceeds its way in the processing line.



●●●●○ FUNCTIONALITY  
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## IXUS

The Ixus scans products in bulk to detect foreign material dangerous to your customer. Metal, glass and small rocks (free flowing and embedded) are detected by absorbing more x-rays than the good product. The Ixus Bulk can also divide products into different categories such as size, shape etc. The type of x-ray source depends on the product, type of defect and capacity. The Ixus is very flexible and easy to integrate into the production line and can be used as a complementary or stand-alone

sorting machine. Implementing an x-ray sorting machine at the beginning of the line will decrease your incoming defect load significantly and will facilitate further processing. At the furthest end of the line, it will minimize the risk of finding anything unwanted in your final product, just prior to packaging.



You are a Resource Revolutionary.

**TOMRA Sorting Solutions Food is the leading provider of sensor based sorting, peeling and processing technology for the fresh- and processed food industries.**

**Turning yield into usage, profits into progress, TOMRA transforms the way the world obtains, uses, and reuses its resources.**

**If you are interested in a free demonstration with your own product or if you need more information, please contact us directly.**



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