



Nuts and Dried Fruit
Sorting Solutions.

Nuts and Dried Fruit Sorting from Bühler. **Equipment and Solutions.**

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1 Bühler in partnership with processors. An integral part of the nut and dried fruit processing industry.

Bühler is a leading global supplier of optical sorting solutions to the food and non-food processing industries and has been at the forefront of pioneering optical sorting technology since 1947.

With a commitment to substantial investment in research and development, Bühler's proprietary sorting technology delivers excellent results in removing the most challenging defects and foreign materials in a wide range of applications.

Nut and dried fruit processors, whether primary or secondary, can be confident of world-class performance when placing Bühler's SORTEX® optical sorters in their processing line for in-shell, natural and blanched nuts, as well as dried fruit applications.

Key benefits

- Exceptional colour, shell and foreign material detection
- Flexible solutions for small and large scale processors
- The most hygienic optical sorters, lowering the risk of contamination

2 Flexible optical sorting solutions. At all stages of the processing line.



In-shell

SORTEX® optical sorters reduce the levels of foreign materials and rotten kernels amongst in-shell applications to improve the efficiency further down the processing line.

Colour, size and shape grading early on also ensures a consistent input to the cracking and shelling process with only the highest grade nuts being approved as fit for further processing.



Natural

The most subtle visible defects are removed from natural nut applications as well as foreign materials which may have been missed by mechanical cleaners or introduced during further processing. SORTEX® optical sorters are equipped with the most advanced optical sorting technologies to ensure stringent safety and quality specifications are achieved every time.



Blanched

Adhering skin, foreign material and subtle colour defects especially those enhanced by the blanching process are removed with pinpoint precision for top quality blanched kernels ready for snacks, ingredients and toppings.



In-shell pistachios



In-shell almonds



Red skin peanuts



Walnuts



Pecans



Blanched peanuts



Blanched almonds



Whole cashews

3 Serious about food safety. **Specialist sorting applications.**



Aflatoxin reduction

Bühler has been at the forefront of pioneering aflatoxin reduction since the 1980s' after tests in Senegal, using the SORTEX® 1161, prove optical sorting could substantially reduce aflatoxin levels amongst ground nuts.



Shell and foreign material removal

Bühler's SORTEX BioVision™ detection system has revolutionised the nut processing industry, helping processors meet strict food safety standards with a zero tolerance approach for shell and foreign materials in the good product stream.

The technology can be positioned at all stages of the processing line, acting as a defence against shell, hull, membrane or foreign materials from the harvest process or as a final barrier against foreign materials such as glass and plastic which often occur during transportation or further processing.

4 4-in-1 defect and foreign material detection on our most hygienic platform. **SORTEX® F.**

The industry's most hygienic optical sorter, enhanced for nut and dried fruit processors with a high capacity 600mm or 1200mm viewing area, built-in climate control and dust extraction kits. Available now with SORTEX® BioVision™ technology.



SORTEX® F.

The SORTEX F, available with the SORTEX BioVision™ detection system offers processors 4-in-1 detection with advanced camera technology which targets colour defects, shell, shape and foreign materials simultaneously in a unique open design frame which lowers the risk of contamination thanks to its hygienic grade fixings, sloped surfaces and easy cleaning access.

The pioneering sorter can be configured for all areas of the nut and dried fruit processing industry, from primary to secondary processors including manufactures of snacks, nut spreads and nut milks for a versatile solution which focuses on hygienic and efficient sorting, seamlessly, at all stages of the processing line.

- SORTEX BioVision™ detection system
- Adjustable 600mm and 1200mm chute
- Open receptacle
- Custom-built colour cameras
- High definition InGaAs^{HD} cameras
- PROfile™ (shape) technology
- MultiVision™ technology
- LED-Xenon lighting
- 17 inch touch screen user interface
- Re-sort capabilities
- ProSortX™ operating software
- Climate control system

BÜHLER



SORTEX F
BioVision



5 Colour and foreign material removal. **SORTEX® A.**

Available in three different frame sizes and technologies, including the MultiVision™ and ColorVision™ InGaAs inspection systems, the SORTEX A provides nut and dried fruit processors with dedicated customised options to handle unique and challenging sorting requirements, regardless of processing size.



One module

Two / Three module

Four / Five module

SORTEX® A.

Equipped with Bühler's custom-built inspection and lighting systems, the SORTEX A removes a range of defects including yellows, mould, light, dark and black spots and shrivelled kernels as well as various foreign materials such as glass, stones and plastic.

Featuring Bühler proprietary technologies including Product Tracking, Auto-Calibration, High-Lumen LED Lighting and the new SORTEX ProSortX™ operating system, the SORTEX A offers ease of use, removing the need for manual intervention whilst delivering consistent high sorting performance.

- MultiVision™, ColorVision™ InGaAs and standard inspection systems
- High capacity feeding with up to 5 chutes
- Custom-built colour cameras
- InGaAs cameras
- PROfile™ (shape) technology
- SmartEject™ technology
- Broadband LED lighting
- Re-sort capabilities
- ProSortX™ operating software



6 Flexible shell, colour and foreign material removal. **SORTEX® E.**

The SORTEX E is designed for nut and dried fruit processors looking for a hygienic sorting solution at lower processing capacities. Available with Bühler's advanced SORTEX BioVision™ detection system which detects shell and foreign materials up to 50% smaller than other industry solutions today.



SORTEX® E.

The SORTEX E offers processors a high performance sorting experience in a small footprint. Designed to bring the benefits of larger sorters to smaller processors, whilst delivering nothing but the highest quality product at all stages of the processing line.

Available with the advanced SORTEX BioVision™ detection system, state-of-the-art high definition InGaAs^{HD} cameras and PROfile™ detection technologies, the SORTEX E is capable of handling multiple nut and dried fruit varieties for best in class foreign material detection.

- SORTEX BioVision™ detection system
- 600mm chute
- Custom-built colour cameras
- High definition InGaAs^{HD} cameras
- PROfile™ (shape) technology
- SmartEject™ technology
- Broad spectrum lighting
- Re-sort option
- ProSortX™ operating software

7 Optimised for mainstream sorting. **SORTEX® B.**

Ideal for nut processors looking for a typical, mainstream sorting solution with proven MultiVision™ technologies and trusted performance. Available in three frame sizes in up to five modules.



One module



Two / Three module



Four / Five module

Mainstream sorting solution with Bühler proprietary technologies for trusted performance.

Features a combination of new and improved camera, lighting, ejection and detection systems to deliver a reliable sorting performance for mainstream nut and dried fruit sorting applications.

- Enhance day-to-day sorting performance and high capacity processing
- Consistent and stable performance
- Simplified ease-of-use

8 Innovative Technologies. Leading the way through innovation.



SORTEX® BioVision™ Technology

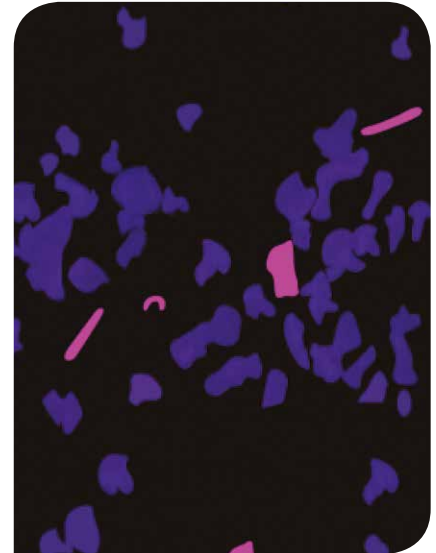
The advanced SORTEX BioVision™ detection system is a unique configuration of detection technologies which includes **BioCam™** combined with either **high definition InGaAs^{HD}**, colour cameras, or both.

Innovative **BioCam™ technology** targets the spectral and spatial differences between the nut and shell, new **high-definition InGaAs^{HD} cameras** detect foreign materials in the near invisible infrared spectrum and **custom-built visible cameras** remove colour defects including dark, rotten, yellow and spot defects.



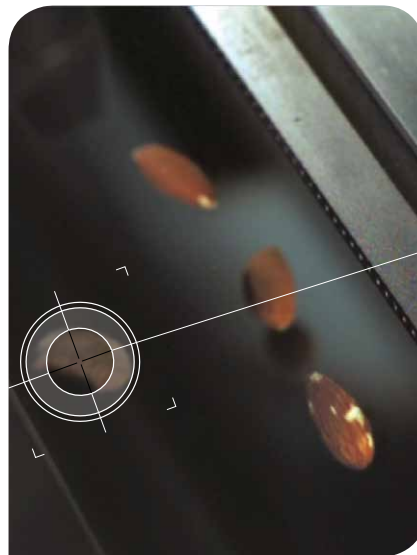
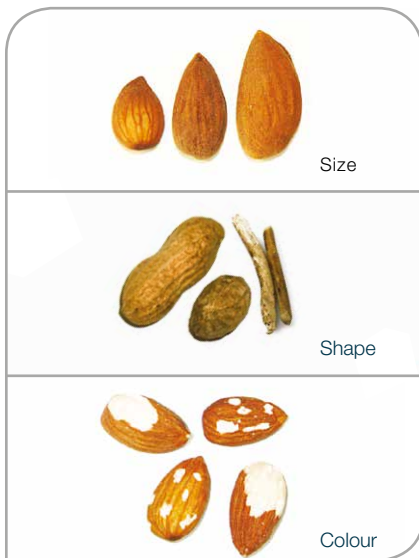
Custom-built visible cameras

Bühler's high resolution colour cameras, which are designed and custom-built in house, remove gross and subtle colour defects and reduce aflatoxin contaminated kernels from a variety of applications to increase product quality, safety and uniformity.



InGaAs^{HD} Technology

The next generation infrared detection technology from Bühler now comes in high definition with double the resolution to detect foreign materials down to half the size. With twice as many pixels, InGaAs^{HD} detects the smallest pieces of hazardous materials that cannot be seen in the visible spectrum for an added layer of assurance.



PROfile™ Technology

PROfile™ technology can intelligently detect and virtually separate touching objects, allowing for higher capacity shape sorting. It can also use a combination of multiple shape parameters to remove stems and under or oversized products at the same time.

Intelligent Ejector Technology

SmartEject™ - high speed, high flow ejectors efficiently remove defects with pinpoint precision and accuracy.

Ejector+ technology, Bühler's most powerful ejectors are available on the SORTEX E and SORTEX F optical sorters to remove heavier objects such as stones and glass.

SORTEX® ProSortX™ operating software

The latest update of Bühler's proprietary operating software comes with a fresh new interface that's modern, clean and intuitive to use. Featuring innovative FingerTipControl™ and all-new Bühler ATOM™ board for faster processing and navigation between screens.

9 Model Variants and Specifications.

Models and variants

	SORTEX® F	SORTEX® E	SORTEX® A	SORTEX® B
SORTEX BioVison™	●	●		
Flexible Colour Cameras	■	■	■	■
InGaAs ^{HD}	●	●	●	
PROfile™ technology	●	●	●	
LED-Xenon lighting	■			■
Halogen lighting		■		■
Broadband LED lighting	■		■	
Climate Control	■	■	●	
SORTEX ProSortX™	■	■	■	
Remote access	●	●	●	●
ATEX		●	●	
CE Certification	■	■	■	■

■ Standard ● Optional

For the full feature list, contact your local representative.

Dimensions, air and power requirements

	SORTEX F		SORTEX E (long chute)	SORTEX A			SORTEX B (available in 5 sizes)	
	FB1	FB2	Includes infeed vibrator	One module	Two/Three module	Four/Five module	B1	B5
Width (mm/in)	1610, 63	2216, 87	1514, 60	1000	1788, 70	2387	1000, 39	2387, 94
Length (mm/in)	3010, 118	2985, 117	3194, 126	1708	1708, 67	1708		
Height (mm/in)	2112, 83	2112, 83	2657, 105	2088	2088, 82	2088	2088, 82	2088, 82
Weight (kg/lbs)	850, 1874	1200, 2645	680, 1500	500	927-970 2043-2138	1107-1150 2440-2535	500, 1102	1150, 2535
Typical air requirements (L/s)* 72-102 psi (5-7bar)	32	65	32	8	16-24	32-40	8	40
Typical Power consumption (kW)** (200-240V; 50/60 Hz single phase)	2.4kW	6kW	2.5kW	1.5kW	2.3-3.1kW		0.9kW	2.9kW

* Figures will vary based on throughput and input contamination levels.

** Figures will vary based on machine specifications.

10 SORTEX® Customer Care. Secure tomorrow's profits today.

Bühler customers have access to a network of over 140 Sales and Service offices worldwide, offering customisable service packages, stock on spares and upgrade kits, to ensure your optical sorters perform at maximum possible efficiency. Training courses and Competence Centres offering application and product trials are also available at regional sites and from local offices around the world.

TotalCare™

Create a customised service package, composed of individual service features from the list below.

From maintenance visits, downtime cover to refurbishments and preventative - basic to fully comprehensive. Designed to ensure your optical sorters perform at its maximum performance.

TotalCare Protect

Minimise Downtime

Based on an agreed number of annual visits, Bühler engineers will replace key wear parts, provide consultation and advise on future maintenance requirements.

TotalCare Perform

Performance Optimisation

Aspiring to keep downtime to under 24 hours, sorters will be safeguarded against any failed components. Bühler engineers will ensure first-rate performance once the repair is carried out.

TotalCare PerformPLUS

Ejector Refurbishment

Making certain that sorters are running at peak performance, ejectors are replaced when the stipulated life-cycle is reached. Performance is maintained for the future.

TotalCare Anyware

Supervised Functionality

Provides a working record of operational information as well as reports that enable machine health to be monitored and preventative maintenance scheduled.

TotalCare AnywarePRO

Remote Access and Assistance

Sorter performance can be viewed remotely by customers and Bühler engineers. Faults can be diagnosed and performance optimised in any location using a laptop, tablet or smart phone.

All contract options are available for variable durations.

SORTEX® Spare Parts Promise

Customer satisfaction is our priority. This is why we strive to deliver both spare and wear parts within 48 hours - maximising your profitability.

SORTEX® Upgrade Kits

Bühler have designed various upgrade kits, for existing customers who are seeking to upgrade sorters with an additional module, new technology features or processing software.

SORTEX® Spare Parts

Various kits to suit different optical sorters are available for customers who wish to have spare parts available on site.

Optical Sorting Training Courses

Available from various regional Bühler locations. From operator to management, basic to advance, speak to your local representative for course selection and availability.



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