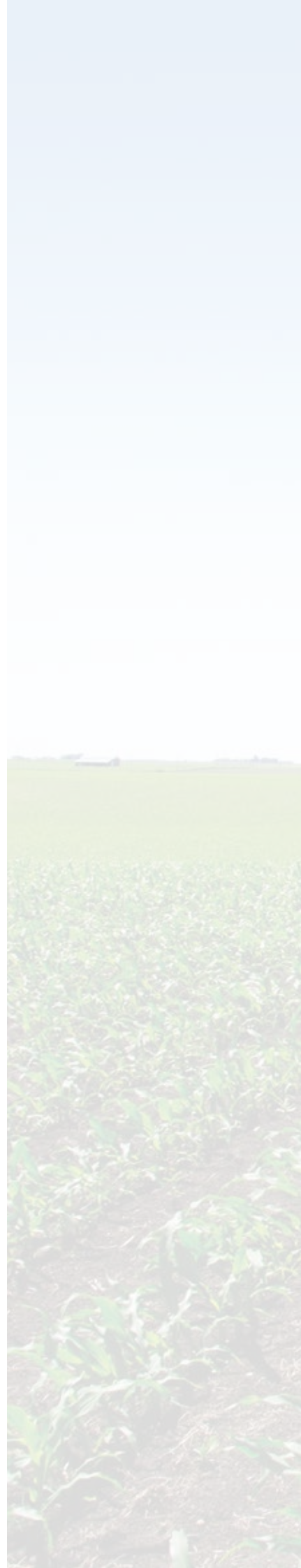


Agricultural Seeds
Sorting Solutions.

Agricultural Seed Sorting from Bühler. **Equipment and Solutions.**

- 1 Typical Seed Sorting Examples
- 2 Seed Sorting Solutions
- 3 SORTEX® A Optical Sorting Range
- 4 SORTEX® B Optical Sorting Range
- 5 SORTEX® Innovative Technologies
- 6 Model Variants and Specifications
- 7 SORTEX® Customer Care



Bühler in partnership with processors. **An integral part of the agricultural seeds 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 optical sorting technology for over 70 years.

This success stems from our continuous research, substantial investment in product development and our working partnerships with seed processors. Equipped with the latest in sorting technologies including detection, ejection and processing software, our optical sorting range are able to meet the highest capacities, yield and customer requirement - removing even the most challenging seed defects and foreign materials.

Why choose Bühler?

- Improves the homogeneous appearance of seeds for better germination levels and consistent growth rates
- Improves yield and product value
- Consistent sorting performance and machine stability
- Increases productivity and lowers operational costs

1 Typical Seed Sorting Examples. Your most challenging sort, conquered.

 Accept  Reject



Sunflower

Different varieties of sunflower seeds such as black, striped or white have varying defects and processing requirements. Using a combination of Bühler proprietary technologies including Enhanced InGaAs and PROfile™, the sorting sample shown above successfully removed sclerotia, flower heads, xanthium seeds and sticks.

Corn (Maize)

Our range of optical sorters can sort a wide range of corn varieties including both white and yellow field corn, popcorn and sweetcorn. In the sorting sample shown above, the application successfully removed diseased corns, insect damage and broken corns for maximum germination. The application can also remove foreign seeds to eliminate cross contamination.

Soya

Raw soya seeds from the field have high levels of cross contamination. In the sorting example shown above, corn, other bean varieties, foreign materials and oblong shaped soya seeds were successfully removed to deliver a consistent homogeneous appearance. For maximum germination, the sorting application also removed immature, brown and black soya seeds.



Paddy



Sunflower



Carrot



Onion



Lettuce



Sugar Beet



Carrot Seeds

SORTEX® optical sorters can also sort smaller seed range such as vegetable seeds, with minimal yield loss. In this trial on carrot seeds, defects removed included panicum, knotweed, morels and foreign materials such as sticks to deliver a homogeneous appearance for maximum germination.



Spinach



Grass



2 Seed Sorting Solutions. **Flexibility at all stages of the process line.**



1

Untreated Seeds

Before Mechanical Grading

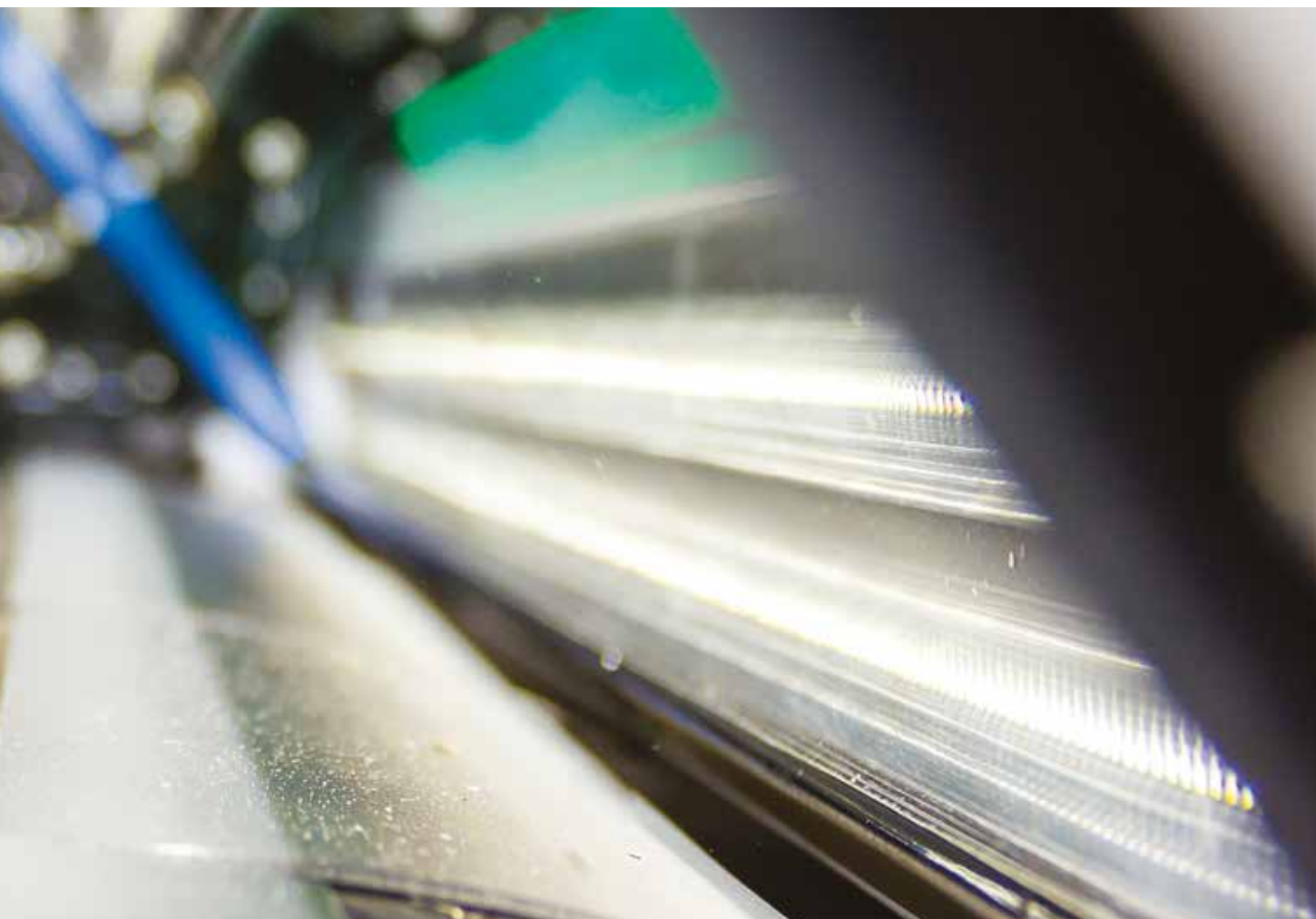
SORTEX® optical sorters can be used on certain seed applications before or instead of mechanical graders to remove foreign materials and seed defects, minimising the loss of good seeds – common during the mechanical grading process.

2

Untreated Seeds

After Mechanical Grading

SORTEX® optical sorting can also be used after mechanical grading to remove defects which have been missed in the process, achieving a consistent, homogeneous appearance for better germination.



3

Treated Seeds After Coating

Subject to treatment type and seed condition, SORTEX® optical sorting can also be used after the coating process to remove non or partially coated seeds for better germination.

4

Batch Processing Small Capacities

SORTEX® optical sorting can also sort smaller capacities as low as 100 kg per hour and only requires a short time for mode change and clean down between seed types.

3 Sophisticated sorters for challenging applications. **SORTEX® A Range.**

Available in two technology variants; MultiVision™ and ColorVision™ InGaAs to help processors meet specific application requirements. Designed specifically for seed processors with challenging applications and who require accuracy to deliver the best in seed quality.



One module



Two/Three module

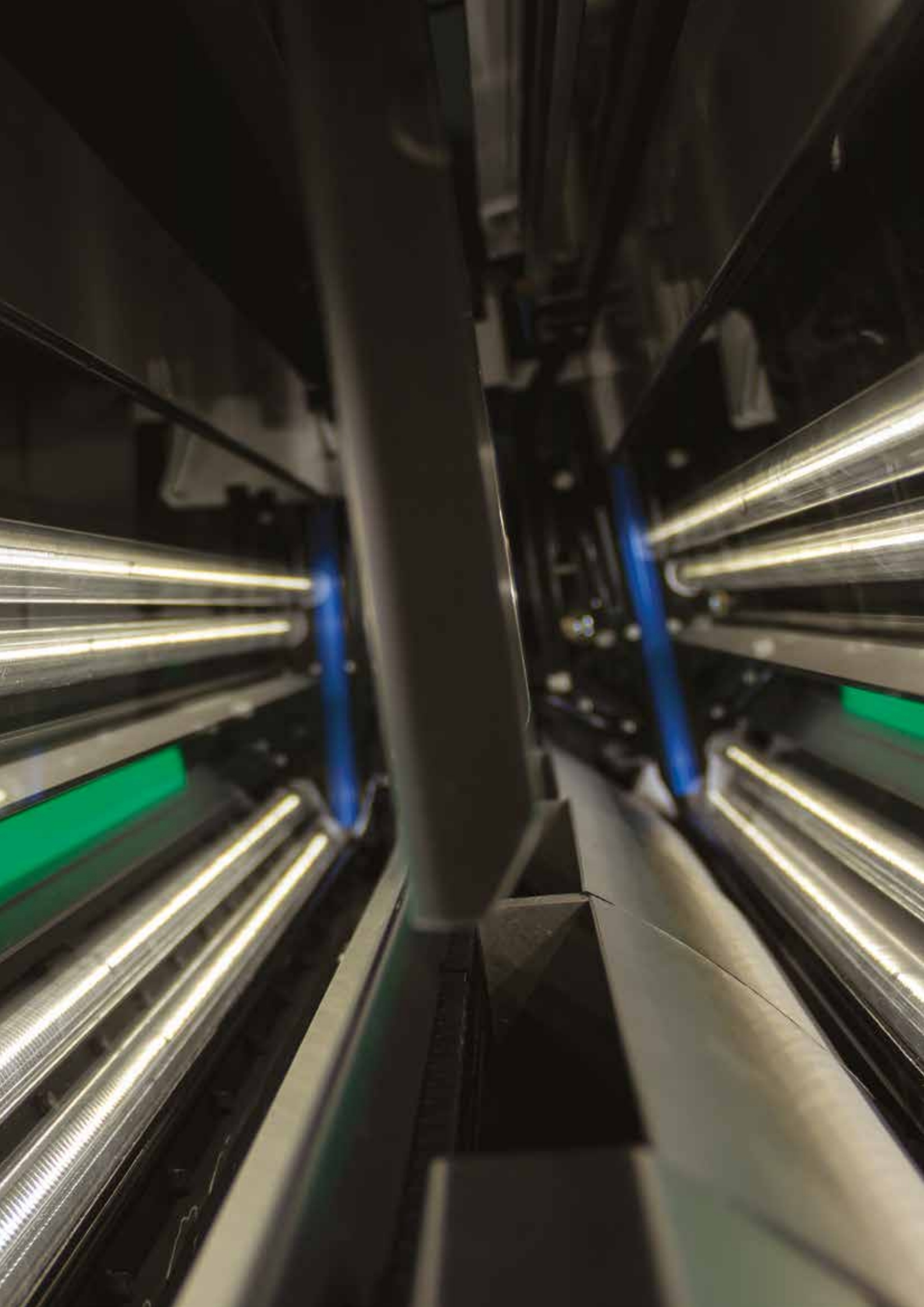


Four/Five module

Most advanced sorting solution for challenging seed application - maximising overall profitability.

Features the latest in advanced detection technologies, including high resolution cameras, LED lighting, high powered ejectors and detection software for accurate removal of subtle colour defects and foreign materials. Delivering uniformed appearance on colour, size and shape - maximising yield, germination and overall profitability. InGaAs technology can also be added for even more challenging defects, delivering superior, premium quality of seeds with concentrated rejects.

- Consistent high sorting performance
- Balanced, stable performance
- Optimising productivity, lowering cost of ownership



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

Ideal for seed processors looking for a typical, mainstream sorting solution with proven technologies and trusted performance. Available in four frame sizes in up to seven modules and technology variants including the SORTEX B and the MultiVision™ technology.



One module



Two/Three module



Six/Seven module

Available in Four/Five module

Mainstream sorting solution with Bühler proprietary technologies for trusted performance

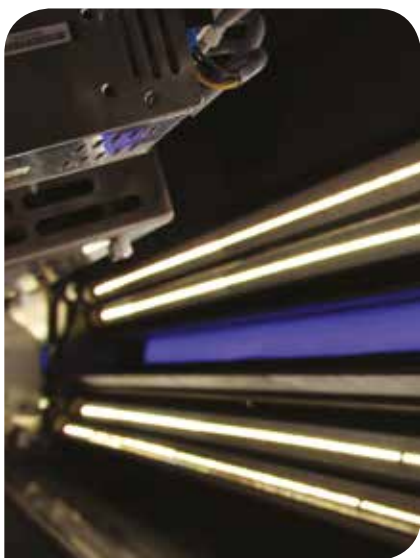
Features a combination of new and improved camera, lighting, ejection and detection systems to deliver a reliable sorting performance for mainstream seed sorting applications. Removes colour defects and foreign materials for uniformed seed quality. For harder to detect defects, including sorting broken and under or over size shaped seeds, the MultiVision™ technology variant, which includes SORTEX PROsize™, is available.

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



5 SORTEX® Innovative Technologies. Mastering the most complex sort.

From Competence Centres around the world and optical sorting headquarters in London, our researchers, engineers and product developers work in partnership with our customers to develop proprietary technologies that are at the forefront of the optical sorting industry - since 1947.



Inspection system with Broadband LED Lighting

A combination of high-resolution customised cameras, designed and built in-house and Broadband LED Lighting, delivers the colour recognition needed to detect defects and foreign material, within the entire visible spectrum.



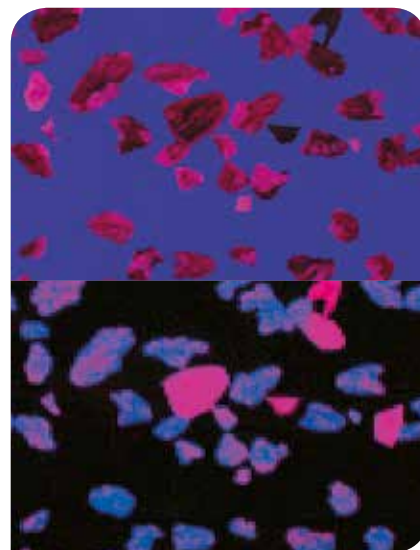
SORTEX ProSortX™ operating system

Fresh new interface that is modern, intuitive to use and responsive - simplified operating system with flexibility and better controls, no need for complex operator training.



SORTEX® Ejector Technology with SmartEject™

Ejectors are precision built for high speed ejection and consistent performance. Its easy serviceability and long lifespan lowers cost of ownership of SORTEX optical sorters. SmartEject sorting algorithms and software fires precisely at the whole defect, efficiently removing unwanted product while minimising false rejects.



PROfile™* (detection) Technology

A combination of three dynamic technologies to perform the most complex sorting tasks.

PROshape™

Remove defects that are the same colour as good products; leaves, sticks, stones etc.

PROsize™**

Separates under, over sized and broken.

PROcolor™

Analyses multiple colour variation as well as individual blemishes offering flexibility to set own product quality.

Balanced and stable sorting performance

Maximise yield, capacity and reduce energy wastage during a secondary or tertiary sort. By optimising modules/chutes for a balanced and stable sorting performance, this helps to avoid unnecessary re-circulation of seeds.

Achieved through a combination of proprietary software including Auto-Calibration and Product Tracking - ensures consistent performance throughout whilst removing the need for laborious manual set-up.

InGaAs Technology***

Originally designed for military satellite application, InGaAs technology can detect defects which cannot be seen in the visible spectrum. By utilising infrared technology, the system reads light reflection as well as colour registration to offer precise detection of unwanted materials, for example foreign materials which are of the same colour as your pulse product.

* SORTEX A MultiVision™

** SORTEX B MultiVision™

*** SORTEX A ColorVision™ InGaAs

6 Model Variants and Specifications.

Product options

Contact your local representative for a full list of product features and specifications.

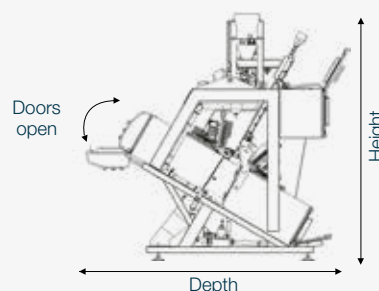
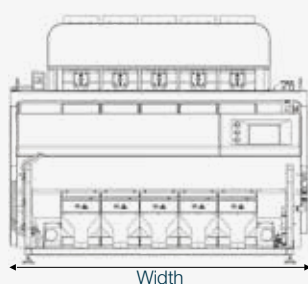
Standard Optional

Only PROsize™ Technology

** Standard when fitted with Enhanced InGaAs

SORTEX A Range	ColorVision™ InGaAs	MultiVision™	SORTEX B Range	SORTEX B	MultiVision™
Flexible Colour Cameras	Standard	Standard	Flexible Colour Cameras		
Fixed Colour Cameras		Standard	Fixed Colour Cameras		Standard
Standard Cameras			Standard Cameras	Standard	
Standard InGaAs	Optional	Optional	Standard InGaAs	Optional	
Enhanced InGaAs	Optional	Optional	Enhanced InGaAs		
PROfile™ Technology	Standard	Standard	PROfile™ Technology		Only PROsize™ Technology
LED Lighting	Standard	Standard	LED Lighting		Standard
IR Lighting	Optional	Optional	IR Lighting	Optional	
Climate Control	**	**	Climate Control		
Remote Access	Optional	Optional	Remote Access	Optional	Optional
SORTEX ProSortX™	Standard	Standard	SORTEX ProSortX™	Standard	Standard
Product Tracking	Standard	Standard	Product Tracking	Standard	Standard
Auto-Calibration	Standard	Standard	Auto-Calibration	Standard	Standard
CE Certification	Standard	Standard	CE Certification	Standard	Standard
ATEX	Optional	Optional	ATEX		

Dimensions, air and power requirements



Machine	Width mm	Depth (Doors Open) mm	Depth (Doors Shut) mm	Height mm	Weight* kg	Typical air requirements (l/s)* 72-102 psi (5-7 bar)	Typical Power consumption (kW)** (200-240 V; 50/60 Hz single phase)
A1 B1	1000	2340	1625	2088	500	8	0.9
A2 B2	1787	2340	1625	2088	927	16	1.2
A3 B3	1787	2340	1625	2088	970	24	1.5
A4 B4	2387	2340	1625	2088	1107	32	2.1
A5 B5	2387	2340	1625	2088	1150	40	2.9
B6	3047	2340	1625	2088	1303	48	2.9
B7	3047	2340	1625	2088	1350	56	3.1

* Unpacked weight. Figures will vary based on machine product options.

* Figures will vary based on contamination levels.

** Figures will vary based on machine product options.

7 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 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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Bühler AG

Gupfenstrasse 5
9240 Uzwil
Switzerland
T +41 (0)71 955 11 11
F +41 (0)71 955 33 79

Business Unit SORTEX®

20 Atlantis Avenue
London E16 2BF
United Kingdom
T +44 (0)20 7055 7777
F +44 (0)20 7055 7700
sortexsales@buhlergroup.com
www.buhlergroup.com/seed-sorting

SO 31624 en 0220 Z&B 200145