



## Fruit and Vegetables **Sorting Solutions.**

# Fruit and Vegetables Sorting from Bühler. **Equipment and Solutions.**

1	The Bühler Advantage	3
2	Fruit and Vegetable Applications	4
3	Process	6
4	SORTEX® K	8
5	SORTEX® F Range	10
6	SORTEX® E1D	12
7	Technologies	14
8	Model variants and specifications	16
9	SORTEX® Customer Care	18







## Bühler in partnership with processors. **An integral part of fruit and vegetables processing.**

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.

Fresh and frozen fruit and vegetable processors can be confident of world-class performance when placing Bühler's optical sorters in their processing line whether before blanching, after blanching, after IQF or in the packing line.

### **Key benefits**

- The most hygienic optical sorters, lowering the risk of contamination
- Unprecedented defect and foreign material detection
- Industry leading optical sorting technologies

## 2 Serious about food safety. Simplifying your most challenging sort.

Accept Reject



### Carrots

Major and minor colour defects such as white, green and dark blemishes as well as foreign materials including stones, insects, mice, plastic, wood, glass and cardboard can be moved from a variety of fresh and frozen carrot applications.



### Peas

All types of colour defects ranging from yellow, blond, khaki and nightshades are removed with ease using Bühler's advanced and custom-built colour cameras. Foreign materials and Extraneous Vegetable Matter (EVM) such as pods, sticks, insects, snails, flower heads, mice, snakes, woods, plastic, glass and stones can be removed without any adjustment to the sorter.



### Vegetable mixes

Typical defects removed include packaging materials such as wood, cardboard and plastic as well as missed EVM so processors can be confident of top quality produce prior to packing.



Green beans



Carrots



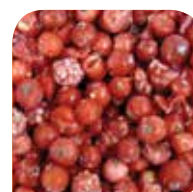
Corn



Peppers



Cranberries



Red currants





## Raspberries

Defects such as white, pink, green, mouldy or soft raspberries as well as foreign materials including insects, snails stems, attached stems, glass and plastic are removed with high efficiency without compromising the valuable, fragile produce.



Blueberries



Strawberries





## 3 Flexible optical sorting solutions. At all stages of the process line.



1

### Before Blanching

Before blanching, SORTEX® sorters are used to remove colour defects, extraneous vegetable matter (EVM) and field foreign material to save processing resources further down the line ensuring higher line capacities can be achieved.

2

### After Blanching

Colour defects can often be enhanced during the blanching stage and SORTEX® sorters are well equipped to ensure that any remaining product deformities are removed. A robust sorting solution prior to the freezing stage, including before blanching and after blanching, is essential to reduce the risk of microbiological contamination.





3

### After IQF (Individually Quick Frozen)

In the frozen state, SORTEX® sorters are equipped with technologies to remove the more subtle colour defects as well as any remaining shape deformities. They are also perfectly suited for bulk to bulk cleaning processes for the removal of missed EVM, field foreign material (FM) and packaging FM.

4

### In The Packing Line

At the final stage of the process, there is a risk of packaging FM such as wood, plastic and cardboard entering the product stream. SORTEX® sorters in the packing line are optimised to detect a wide range of foreign materials in just one simple set-up to ensure top quality produce that is safe to eat is achieved every time.

## 4 Process highlight. **Pre and post blanching.**



### **SORTEX® K**

The SORTEX K range uses a cutting-edge, double sided detection system to remove the most challenging defects in canned or fresh applications. The high capacity sorter is able to inspect product in a blanched or unblanched state and can be equipped with PROfile™ (shape) technology for outstanding detection of EVM to remove hazardous foreign materials. The SORTEX K also features a hygienic, stainless steel frame with IP56 protection.

- 12.1 inch user-friendly touch screen interface
- Custom-built colour cameras
- 1200mm viewing width
- PROfile™ technology
- 256 high speed, high flow ejectors
- Powerslide™ Conveyor
- Pre-set sorting modes
- External USB port for data retrieval
- ProSortX™ operating software









## 5 Process highlight. After IQF and in the packing line.



1200mm Chute



600mm Chute

### SORTEX® F

The new SORTEX F range of optical sorters for frozen fruit and vegetable processors pushes the boundaries in hygienic design with the most open and accessible frame the market has ever seen. Available in two frame sizes, the SORTEX F is perfect for small to large processors seeking maximum food safety and quality.

Combine this with breakthrough sorting technologies including the SORTEX® PolarVision™ detection system and new LED-Xenon lighting for unprecedented defect and foreign material detection.

The SORTEX F is custom built to be placed after IQF or in the packing line to remove gross and subtle colour defects, extraneous vegetable matter and hazardous foreign materials with market-leading results.

- Open frame with hygienic grade fixings
- Adjustable UHMW-PE chute
- InGaAs<sup>HD</sup> option
- Open receptacle
- Custom-built colour cameras
- SORTEX® PolarVision™ detection system
- PROfile™ (shape) technology
- LED-Xenon lighting
- 17 inch touch screen, user interface
- ProSortX™ operating software
- Available in two frame sizes 600mm & 1200mm

## 6 Process highlight. In the packing line.



### SORTEX® E1D

The SORTEX E1D offers consistent performance over a wide range of products and complex vegetable mixes with no changes to machine settings.

Efficient detection of packaging FM with Enhanced InGaAS technology removes plastic, wood and cardboard. High-speed ejectors efficiently remove defects with minimal loss of good product.

Colour measurement parameters can be adjusted to separate subtle colour differences; PROfile™ (shape) technology allows detection of defective material in real time through the measurement of multiple shape features on each object.

- Stainless steel frame for easy cleaning
- UHMW-PE chute
- Double sided detection
- Custom-built colour cameras
- High definition InGaAs<sup>HD</sup> technology
- SORTEX PolarVision™ detection system
- PROfile™ (shape) technology
- 12.1 inch touch screen user interface
- ProSortX™ operating software





## 7 Innovative technologies. Simplifying the most complex sort.



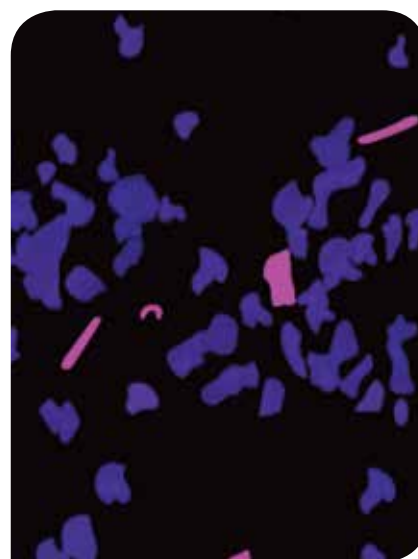
### SORTEX® PolarVision™ technology

The specialist SORTEX PolarVision™ detection system brings together pioneering technologies for unprecedented, market leading foreign material removal. Innovative **PolarCam™** technology targets the spectral and spatial differences between the commodity and foreign materials whilst new high-definition **InGaAs<sup>HD</sup>** cameras detect foreign materials in the near invisible infrared spectrum.



### Custom-built visible cameras

Bühler's high resolution colour cameras which are designed and custom-built in house remove gross and subtle colour defects from a variety of fruit and vegetable applications to increase product quality and uniformity.



### InGaAs<sup>HD</sup> 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<sup>HD</sup> 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.



## High-speed Ejectors and Ejector<sup>+</sup>

128 or 256 high speed, high flow ejectors efficiently remove defects and 600 mm or 1200 mm viewing width ensures high product flow and low yield loss.

Ejector<sup>+</sup> technology, Bühler's most powerful ejectors, is now available on SORTEX E1D and SORTEX F optical sorters for precise removal of heavier objects such as stones, glass and product lumps.



## 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.

## 8 Model Variants and Specifications.

### Product features and options

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

Standard

Optional

Features and Specifications	SORTEX® K	SORTEX® E1D	SORTEX® F
SORTEX PolarVision™			
Flexible Colour Cameras			
InGaAs <sup>HD</sup>			
PROfile™ technology			
LED-Xenon Lighting			
Fluorescent lighting			
Halogen lighting			
Filter changer			
Feed vibrator			
Remote access			
SORTEX ProSortX™			
CE Certification			

### Dimensions, air and power requirements

SORTEX® K Range	Width mm	Length 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)
SORTEX K2A	2423	2884	2442	1250	65	4.5
SORTEX K2P	2423	2884	2442	1250	65	6.0
SORTEX® E1D machine with vibrator	Width mm	Length 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)
Short chute	1616	2799	1780	550	32.5	3.0
Long chute	1616	2799	1970	550	32.5	3.0
SORTEX® F Range	Width mm	Length mm	Height mm	Weight* kg	Typical air requirements (l/s)* 102-116 psi (7-8 bar)	Typical Power consumption (kW)** (200-240 V; 50/60 Hz single phase)
SORTEX FA1	1610	3010	2112	850	Standard 32 Ejector* 45	2.4
SORTEX FA2	2210	3004	2112	1250	Standard 65 Ejector* 90	4.75

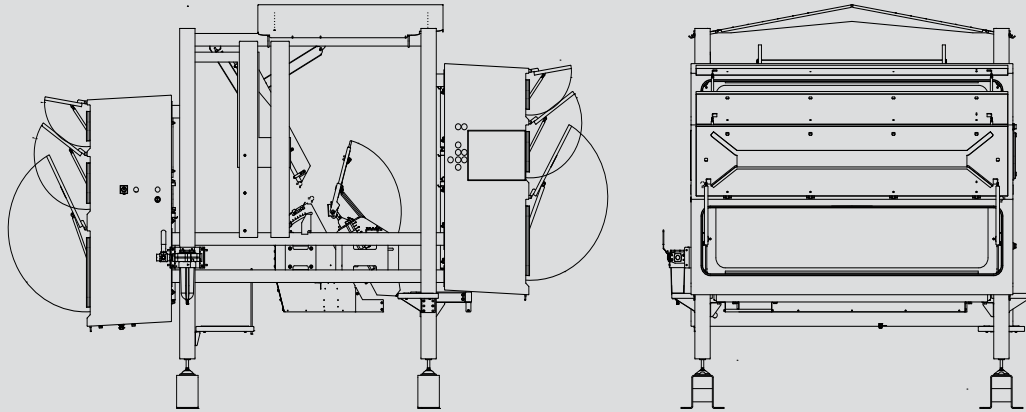
\* Unpacked weight. Figures will vary based on machine product options.

\* Figures will vary based on contamination levels.

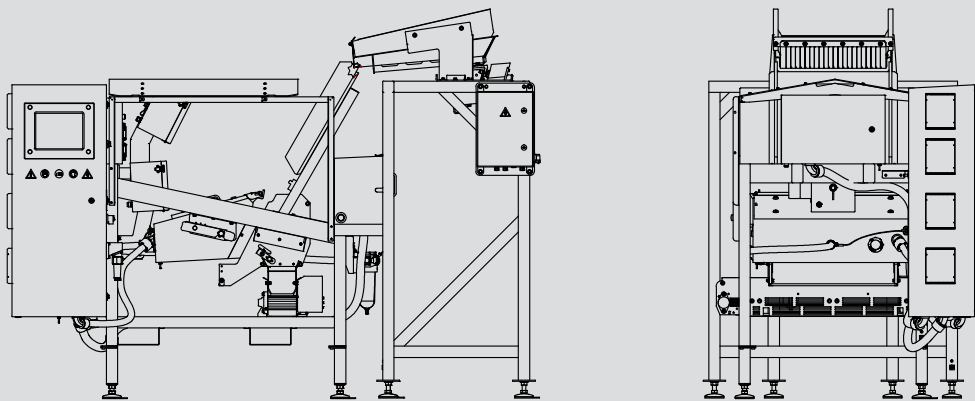
\*\* Figures will vary based on machine product options.



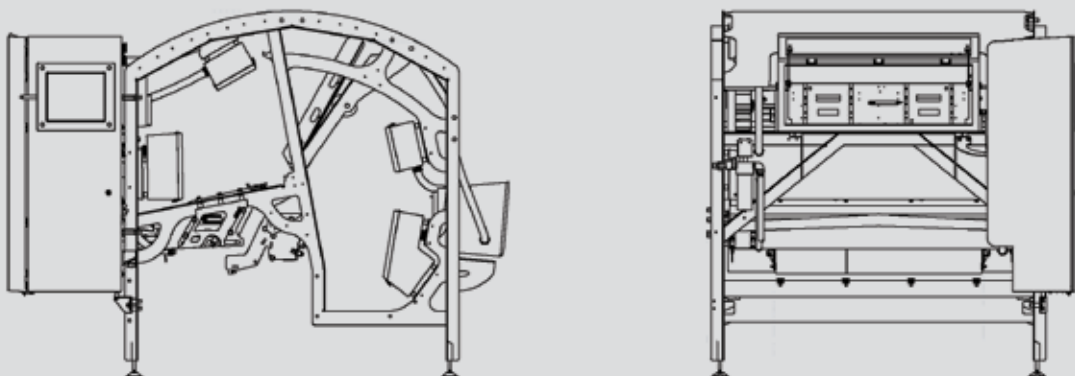
## SORTEX® K



## SORTEX® E1D

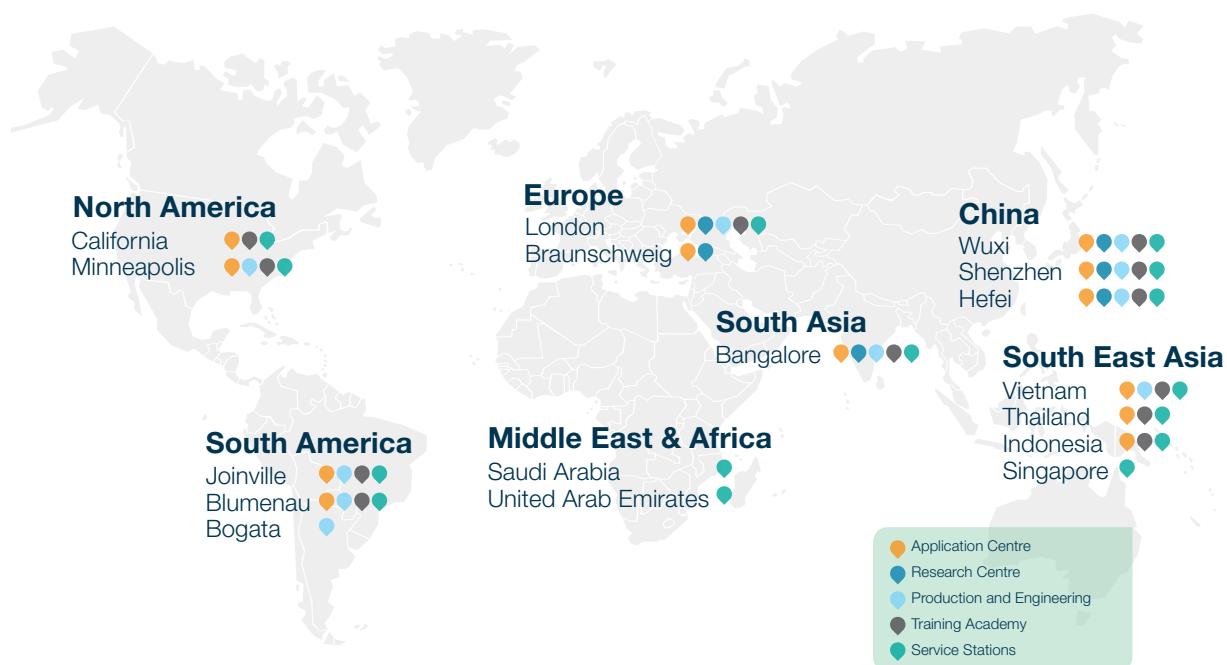


## SORTEX® F



## 9 SORTEX® Customer Care. Secure tomorrow's profits today.

Bühler's worldwide Customer Care organisation delivers the highest quality local support ensuring optical sorters perform at maximum possible efficiency, deliver optimum productivity and make the best return on investment.



### The SORTEX® Spare Parts promise.

Customer satisfaction is our priority. This is why we strive to deliver spare and wear parts within 48 hours, doing our best to limit your downtime and maximise your profitability.

For customers who require spare parts available on site, Bühler's technologists have created appropriate spares kits for the different machinery available.



# TotalCare™

## Performance protection.

TotalCare™ allows customers to create their own service package, composed of individual service features that best suit their needs. Customers can create a tailored programme from a variety of packages. Contract options vary from basic to fully comprehensive cover. This way, investments can remain fully protected.

### **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® upgrade kits.**

Suitable for those who are seeking to upgrade sorters with an additional module, new features or software updates.

New technologies and innovations are continuously in development. Upgrade kits allow customers with existing machinery to enhance their production line with the very latest proprietary optical sorting technology.

© The Bühler Group 2018

SORTEX® is an internationally registered  
trademark of the Bühler Group

## **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](mailto:sortexsales@buhlergroup.com)  
[www.buhlergroup.com/optical-sorting](http://www.buhlergroup.com/optical-sorting)

SO 31626 en 1118 Z&B 185049