| GB |

SEA CHROMEX

ELECTRONIC SORTING

CONVEYING | DRYING | SEED PROCESSING | ELECTRONIC SORTING | STORAGE | TURNKEY | SERVICE

MUCH MORE THAN FULL-COLOR

SEA CHROMEX

Colour sorting is necessary nowadays to ensure the best purity of bulk products, as well as ensuring that the strictest food hygiene and health requirements of end-products are met.

Utilizing top of the line Full-Colour RGB cameras, with optical resolution of 0.06 mm the SEA CHROMEX is able to determine and sort the smallest differences in colour or shade for your processing system. The combination of Full-Colour vision system with NIR and InGaAs technologies makes the SEA CHROMEX the most advanced vision-based sorter on market, representing the fruits of almost 50 years' experience of colour sorting technology.

Excellent for all food and industrial processing systems, SEA CHROMEX reaps the benefits of the new EXAGON interface that makes setting and adjustment extremely simple.

EXAGON GRAPHIC INTERFACE

NEW EXAGON USER INTERFACE

SEA CHROMEX comes as the upgraded version of the SEA CHROME series, recognized on the global market as the best-performing sorting machine using Full-Colour technology in combination with NIR and InGaAs cameras.

SEA CHROMEX provides the highest yield and quality. In addition, thanks to the new EXAGON graphic interface, setting and adjustment are now even simpler, faster and more intuitive.

The new graphical user interface improves the user experience, with more appealing graphics and simplified screens to allow even novice users to be able to set dedicated programs in a straightforward manner.

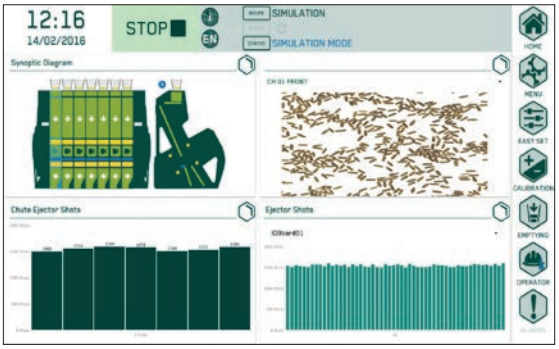
EXAGON allows the use of the same programs on multiple SEA CHROMEX machines, whilst enabling a single database and the rapid creation of efficient programs.

EXAGON offers different levels of difficulty accessible by password, depending on the operator's preparation.

EXAGON allows data to be remotely retrieved from the colour sorter on company networks, with the capability to create a database detailing production aspects such as the number of rejects.

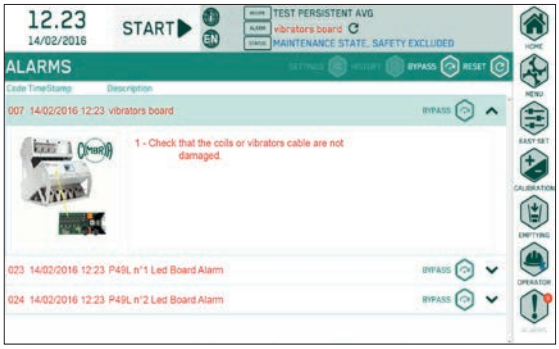
EXAGON has a customizable home page with widgets that the customer can change at any time according to his needs.

SEA CHROMEX EXAGON 1.0

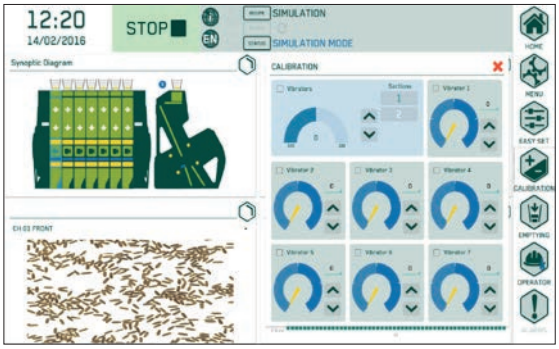


Up to 4 simultaneous widgets on the home page

Machine status available through its synoptic

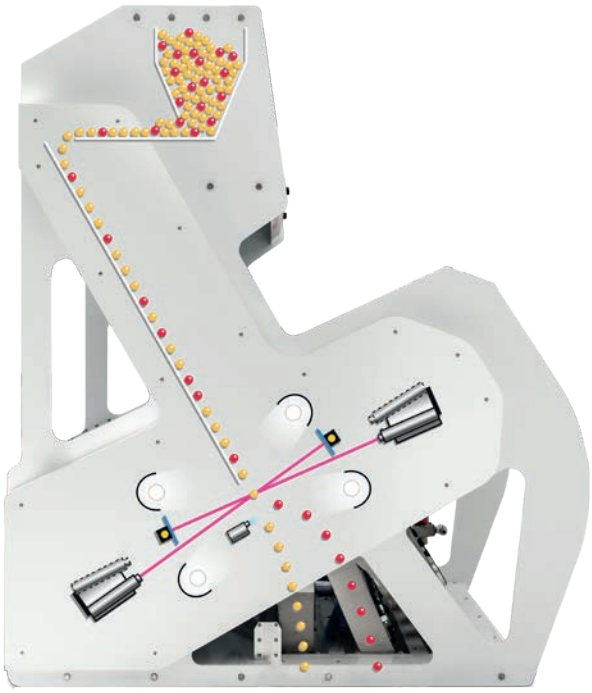


Alarm smart explanation for immediate repair



Real-time sorting statistics

PROCESS OVERVIEW

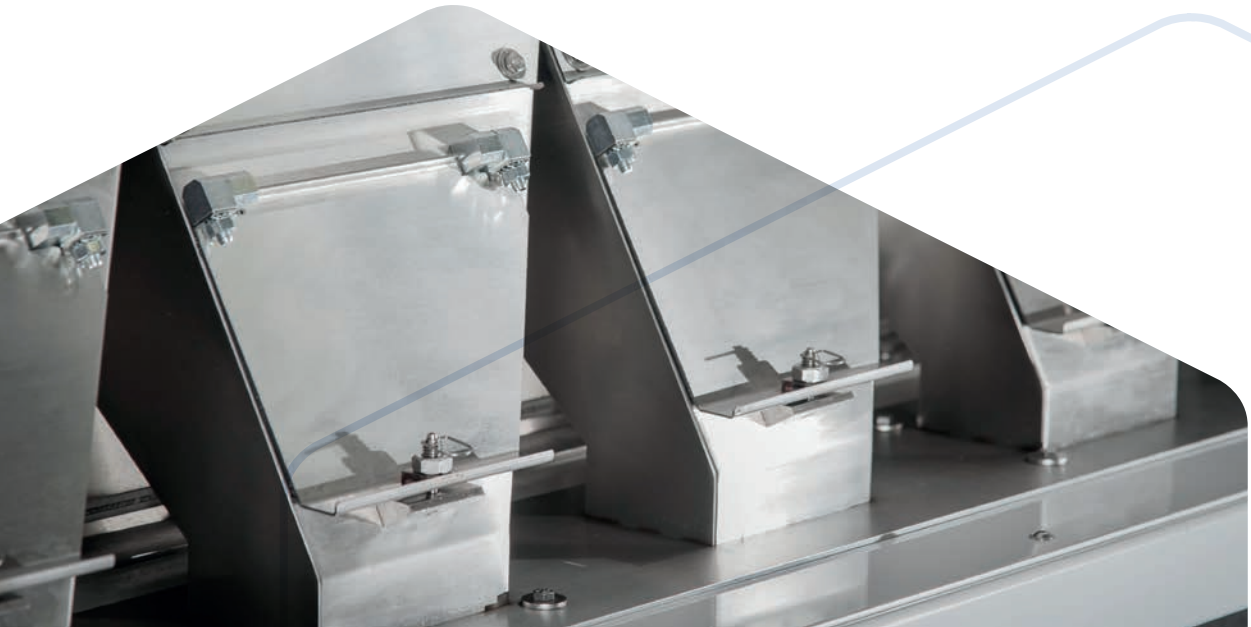


0.06 MM OPTICAL RESOLUTION

OPERATION

1 Product in-feed hopper
2 Vibrating feeder
3 Sloping chute
4 Full-Color RGB cameras
5 Optional additional NIR or InGaAs cameras
6 Ejectors
7 Accepted product discharge hopper
8 Reject product discharge hopper

In automatic re-sort versions, the accepted or rejected product can be conveyed to another section of the SEA CHROMEX to undergo multiple passes of the sorting process.



MACHINE RANGE AND CONFIGURATIONS

MODEL	CHROMEX 0,5	CHROMEX 1	CHROMEX 1,5	CHROMEX 2	CHROMEX 3	CHROMEX 4	CHROMEX 5	CHROMEX 6	CHROMEX 7
CONFIGURATION									
VIBRATOR	1	1	2	2	3	4	5	6	7
CHUTE	0.5	1	1.5	2	3	4	5	6	7
CAMERAS*	2	2 to 4	2 to 4	4 to 8	6 to 12	8 to 16	10 to 20	12 to 24	14 to 28
EJECTORS	27	54	77	108	162	216	270	324	378

* Data refers to standard configurations.

MODEL	CHROMEX 0.5	CHROMEX 1	CHROMEX 1.5	CHROMEX 2	CHROMEX 3	CHROMEX 4	CHROMEX 5	CHROMEX 6	CHROMEX 7
DIMENSIONS mm									
WIDTH	920	920	920	1510	1510	1920	1920	2470	2470
DEPTH	1690	1690	1690	1690	1690	1690	1690	1690	1690
HEIGHT	2100	2100	2100	2100	2100	2100	2100	2100	2100
WEIGHT kg.	620	750	800	1000	1060	1250	1300	1600	1650
POWER CONS kW	1,5	1,5	1,5	1,5	1,5	2,5	2,5	3,5	3,5
AIR CONS AT 4 BAR l l/sec	4,2	8,4	12,6	16,8	25,2	33,6	42,0	50,4	58,8

The dimensions and technical data specified above are indicative and are subject to alteration.
We reserve the right to alter specifications at any time without prior notice.

SEA CHROMEX

SEA CHROMEX 0.5 T+T AVAILABLE FOR LAB APPLICATIONS

APPLICATIONS

GRAINS

CEREALS

SEEDS

PULSES

COFFEE

NUTS

PLASTICS

METALS

Testing centres are available for industrial tests in Cimbria labs in Italy and in countries in your region.

VISION SYSTEM AND SETTING

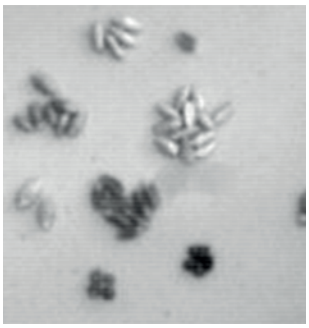
FULL-COLOR RGB CAMERAS

- SEA CHROMEX sorters are equipped with ultimate 4096 pixel Full-Colour cameras, with red, blue and green (RGB) sensors which provide 0.06 mm optical resolution on differences in colour and shade with dimensional control.
- SEA Full-colour cameras recognize 16 million individual colours, offering the highest optical resolution.
- Camera scan rate is 18,000 times/sec (18 KHz).

How RGB full-color cameras see them

NIR AND INGAAS CAMERAS

- Besides differences in colour, NIR and InGaAs cameras are used in SEA CHROMEX sorters, either alone or in combination. In electronic sorting, these technologies indicate the infrared area in which the image sensor performs.
- NIR cameras optimize the separation of foreign bodies from conforming products with a similar colour, such as stones, sticks, glass and plastic in seeds, grains and coffee.
- InGaAs technology allows for the separation of defects which cannot be visually distinguished, such as the removal of seeds affected by sclerotium or the separation of hulled and unhulled grains or shells from nut kernels.



How infrared cameras see them

SETTING THE SORTING PARAMETERS

- The HSI image processing system by photographic acquisition compares the object to user-defined accept or reject thresholds, thus identifying it as a real defect or as an accepted element.
- The HSI system analyses the images detected by the vision system almost as effectively as the human eye, with the ability to recognize up to 16 families of defects.
- Up to 200 different custom-made sorting recipes available on board.

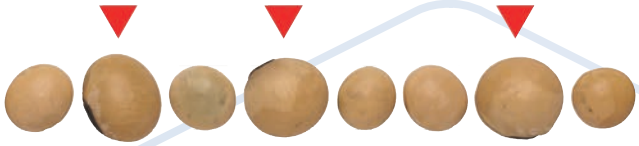
SETTING THE DAMAGED AREA

- Defect size can be controlled and adjusted according to individual needs. This system allows the user to determine if a spot on an individual piece within the product being sorted should be rejected or accepted according to its defect size.

SETTING THE SHAPE

- The separation of elements presenting different geometric characteristics is also possible, thanks to the shape-sizing function integrated into the system.

SHAPE-SIZING INTEGRATED INTO THE SYSTEM



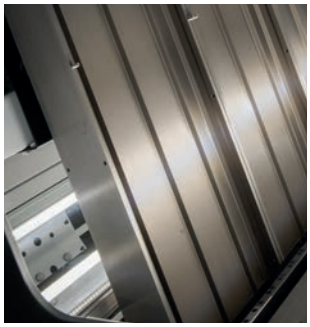
MAIN FEATURES

LED LIGHTING SYSTEM

- Our LED lighting system, exclusively designed for SEA sorters, allows for the most precise focusing of the beam on the camera viewing area for exact sorting.
- LED lighting ensures longevity and reliability (over 100,000 hours of use) and low heat dissipation.

HIGH CAPACITY FEEDING CHUTES

- The SEA CHROMEX sorter is available with 1 to 7 chutes to meet any production capacity requirement.
- Additional re-sorting and reverse sorting configurations are available on multiple chute models.
- The SEA CHROMEX chutes are specially designed to guarantee a smooth flow of the product and to avoid product breakages.
- Chutes are reversible to enable any variety of products usable with the same feeding system.
- Product speed up to 7 m/s



ELECTRONICS – HARDWARE

- SEA CHROMEX hardware is organized in easily replaceable electronic boards using the ultimate in SMD and FBGA technology.
- Self-control functions, such as auto-diagnosis and auto-calibration, maintain consistent sorting performance for your product.
- Software backup is possible through the USB port on the front panel of the PC.
- High-speed signal communication to the expulsion system ensures excellent performance.

OTHER CHARACTERISTICS

ULTRA RAPID-FIRING EJECTORS

- State-of-the-art ejectors guarantee the most accurate precision and expulsion, producing highly concentrated rejects.
- Our rapid-firing ejectors are guaranteed for more than 2 billion operating cycles and can easily be repaired or replaced.

NEW 15-INCH MULTI TOUCH COLOUR DISPLAY

- The Windows 7 embedded graphic interface assures easy connection to company networks and to remote assistance systems.

MECHANICAL DESIGN

- Pressurized and conditioned optical boxes prevent dust entering sensitive parts of the SEA CHROMEX sorters.
- An airtight structure prevents dust and product outflow.
- SEA CHROMEX provides easy product collection and sampling.
- Folding optical boxes enable the full opening of the sorter, thus facilitating proper cleaning and maintenance.
- SEA CHROMEX sorters are provided with standard flanges for dedusting systems.
- Pre-arrangement for additional aspiration system is available.

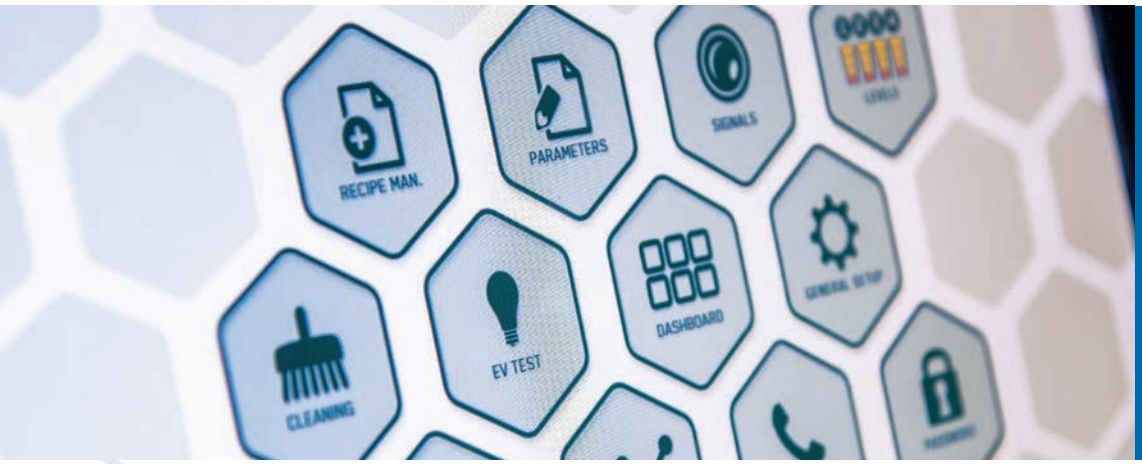
RELIABILITY

- Remote control and online assistance is available from our service centres.
- Programmed technical service contracts are standard.
- Cimbria has servicing and spare parts centres in several countries.
- Cimbria has references within international markets.

OTHER

- CE certification of conformity can be combined with ATEX 22 certification (optional)
- Customized colour (optional)
- Stainless steel version available (optional)

Stainless steel machine version



EUROPEAN TECHNOLOGY MADE IN ITALY

AFTER-SALES SERVICE

START-UP & TRAINING

Cimbria SEA personnel perform these operations at the customer's premises. The operator is duly trained during start-up by an experienced Cimbria SEA technical engineer.

REMOTE ASSISTANCE

SEA Chromex sorters can be accessed remotely through Teamviewer. By means of an internet connection, the Cimbria SEA operators can control, modify and memorize the program data through a specific server.

SERVICE

Specialized Cimbria SEA technical engineers carry out onsite service. Cimbria SEA offers different annual servicing contracts for the customer's peace of mind.

SPARE PARTS

The user manual provides instructions and codes for spare parts requests to Cimbria SEA. Spare parts sets are available upon request.

ADVANTAGES

SEA CHROMEX

- 0.06 mm optical resolution
- Excellent sorting performance
- Highest added value products
- Machine adaptability to existing working plants
- Operational reliability
- Concentrated rejects
- Cost-effective technology
- Savings in terms of production costs
- Versatile and user-friendly technology
- Low maintenance required
- Relentless development of new features
- Maximized profit for the end-user

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