ASM®
advanced sorting machines
A Company of elica

Optical Sorting Solutions

Ensuring maximum product purity, reliability and ease of use

Sorting by
- Color
- Shape
- Material type

Systematic and smart sorting.

Professional Solutions for bulk material.

pure.

With over 30 years of expaerience in the field of optical sorting technology, Elica ASM (Advanced Sorting Machines, a company of Elica) is a leading manufacturer of automatic sorting systems for the food industry. Elica ASM has a history of cutting-edge technical development, e.g. as an early-adopter of LED lighting and innovative image reconstruction.

Elica ASM is Made in Italy. The machine is state-of-the-art with an electronic and software engine designed for optimal performance. The components are built for quality and ensure the highest efficiency with minimal maintenance costs and downtime.

Application Samples

Accepted material
(high quality)

Rejected material
(low quality, contamination)

Elica ASM QUASAR

QUASAR intelligent optical sorter

- 4k High-Resolution cameras with True-Color image processing technology.
- True-Shape technology to see and differentiate the exact shape of every single kernel, at high speed.
- Higher capacity, dedicated optical processor and analysis speed up to 40 kHz.
- Sniper ejector logic reduces product loss to a bare minimum.
- Even easier to use, with a new HD interface, industrial-grade tablet and auto-calibration.

Model	Height	Depth	Width
QUASAR 1000	1910 mm	1821 mm	895 mm
QUASAR 2000	1910 mm	1821 mm	1368 mm
QUASAR 3000	1910 mm	1821 mm	1670 mm
QUASAR 4000	1910 mm	1821 mm	2068 mm
QUASAR 5000	1910 mm	1821 mm	2414 mm
QUASAR 6000	1910 mm	1821 mm	2820 mm

The ever stringent quality standards are creating new technical challenges for big and small businesses alike. Helping our customers to increase final quality has been the main drive behind the development of sorting technology and lead to the creation of an entirely new optical sorting machine, designed specifically to meet the new challenges in quality control: the Elica ASM QUASAR.

Logic

We developed a completely new "Optical Processor" called Logic, which is the heart of the machine. This is a combination of very powerful hardware and software algorithms, which closely mimics how humans understand visual information.

In order to determine how something looks like and what the differences between two objects are, the human brain combines colours, shapes, and textures. Optical sorters could only analyse this information separately, until now.

Just like our brain

The QUASAR judges many different parameters at the same time, and can "understand" what its cameras are seeing. It automatically knows what the real colour of an object is, independently of lights and shadows, and the exact shape and texture of every single kernel, contaminant or particle. This makes it very accurate in deciding what to keep or reject, and incredibly easy to use.

Elica ASM VISION

VISION color and material-type sorter

- Latest hardware and software.
- Highest purity, concentrated rejects.
- 0.09 mm camera resolution.
- Image reconstruction software.
- Optional: Material-type detection with NIR & NIR InGaAs.
- LED full-color lighting for a service life of up to 100,000 hours.

Model	Width	Height	Depth	Weight
V100	900 mm	2000 mm	1710 mm	740 kg
V200	1360 mm	2000 mm	1710 mm	960 kg
V300	1670 mm	2000 mm	1710 mm	1050 kg
V400	2080 mm	2000 mm	1710 mm	1200 kg
V500	2410 mm	2000 mm	1710 mm	1500 kg
V600	2830 mm	2000 mm	1710 mm	1750 kg

The VISION Series optical sorter was designed to maximize throughput and defect removal while decreasing false reject.

The new software features a user-friendly and intuitive touchscreen. The LED lighting system increases the contrast on the smallest contaminants and provides a constant light quality. A special chute design can process a higher throughput than conventional sorting machines with the same operating width. The latest generation of air-valves further reduces the loss of good material and offers a longer service life.

The VISION sorter is available in 6 different sizes.

The VISION Series was designed for reliability and precision.

R G B now also available with full-color cameras

Ex VISION model is now available in ATEX category **Ex II 3D** and thus for usage in zone 22 suitable.

VISION INOX special version

The VISION INOX is a full stainless steel version for applications that require this feature.

Elica ASM TIGERBELT

TIGERBELT belt-type optical sorter

- Belt feeder with variable speed and inclination to ensure optimal product flow.
- 4 Full Color RGB-cameras, with 6144 Pixel and an optical resolution 0.09 mm, combined with a data processing speed of 24 Khz, ensure maximum precision and high capacity.
- NIR technology detects the presence of foreign material and rotten objects at the same time.
- Intuitive user interface with auto-calibration features.
- Low maintenance costs and ease of operation.
- All our optical sorters have an ethernet connection which allows remote control and monitoring, and greatly simplifies technical assistance.

Model	Length	Width	Minimum Height	Maximum Height	Weight
TIGERBELT	3120 mm	1416 mm	1860 mm	2300 mm	1200 kg

The TIGERBELT is a belt-type, high-speed optical sorting machine, designed to overcome the limitations of gravity-fed sorters. It features high-resolution Full-Color cameras, a groundbreaking feeding system and a sturdy mechanical structure to withstand the most demanding working conditions.

Highly adaptable
The TIGERBELT is dedicated to a wide range of applications, from food to plastic material, and can be configured to handle many product types on the same unit.

The sorting of difficult materials is no longer a problem
The TIGERBELT has a detection area which is 720 mm wide and offers 144 high-speed air ejectors to expel defects of various shapes and dimensions. Thanks to the innovative design of the optical sections, it can analyze both sides of every single particle as it passes in front of its cameras, and is able to reject defects by color and size, at the same time.

Thanks to special infrared sensors, the TIGERBELT is capable of removing superficial fungi and pests, damaged products (as a result of improper storage) and foreign objects, even if the colour is similar or equal to the accepted material.

A conveyor belt distributes the product evenly, eliminating rolls and bounces, thanks to an efficient combination of inclination and speed, which are adjustable for each type of program.

This combination of sensors and feeding technology allows users to sort all those products that, due to their physical characteristics, are impossible to sort on a chute-fed optical sorter. This includes sticky, humid, greasy, over-size, mixed size, IQF material, and more.

Elica ASM LABSEED

LABSEED laboratory color sorter

- Suitable dimensions for laboratory and batch operations.
- High performance sorting of small batches less than 1 kg.
- LED full-color lighting for a service life of up to 60,000 hours.
- Very high camera resolution: 0.09 mm.
- Auto-learning functionality.

Model	Width	Height	Depth	Channel width	Weight
1000	600 mm	1100 mm	800 mm	90 mm	145 kg
2000	995 mm	1690 mm	1350 mm	180 mm	590 kg

Elica ASM LABSEED is the most precise sorter series. It has been designed for quick batch changes in laboratories and research institutes and focuses on sorting accuracy and smaller quantities.

Function

The product is fed into the sorter through a hopper. A vibration feeder uniformly distributes the material across the operating width and feeds it onto an inclined chute. The correct angle combined with the channel shape and the surface finish allow for an excellent singulation of the product, so that the cameras can inspect the product from both sides. When a passing particle is identified as defective, it is ejected into the reject chute with a precise blast of air from the valve manifold. Good material passes through the sorter untouched.

In the sorting process, the contaminated material flow is separated into reject and accept products.

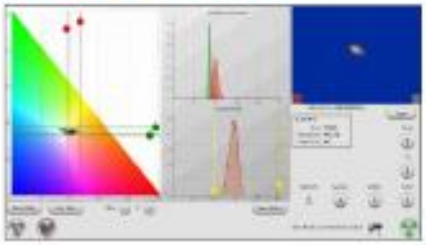
Technical features

- Low-maintenance RGB LED lights offer 100,000 hr lifetime and are not affected by temperature
- An unlimited number of programs for different products can be saved
- The Sorter is available in five sizes to match the desired throughput
- Frequency control to provide uniform sorting in all chutes
- Self-monitoring and error/alarm indication log
- Defects are removed by a rear ejection manifold with nozzles fed by low-maintenance, high-precision valves
- Minimal power and compressed air consumption
- Remote maintenance through internet standard connection

Options

- Remote access through Ethernet
- Remote control module for touchscreen tablet device
- ATEX version (only VISION series)
- Fill level sensor throughput control software

Easy operation



Control: high-resolution LCD touchscreen

Ease of use through true color setup

- Easy operation with 8.4" or 10" color display
- Easy program change for color sensitivity and defect size settings

Camera options

Color, size, near-infrared

TrueColor: Sorting by real color information
Dark: Sorting by dark pixels
Light: Sorting by light pixels
Size: Sorting by size

NIR: Sorting by foreign materials (e.g. glass, stones)
NIR-InGaAs: Sorting by material properties (e.g. barley in wheat, shells in nuts, mycotoxins etc.)

Multiple sensors and sorting parameters can be combined to satisfy customer's product quality requirements.

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ELICA systems solutions

MACHINES

- Pre-cleaners
- Fine cleaning and calibration separators
- Destoners
- Gravity tables
- Paddy separator
- Seed treaters
- Optical sorting machines
- Hammer mills

TRANSPORT EQUIPMENT

- Bucket elevators
- Z-elevators
- Chain conveyors
- Closed loop chain conveyors
- Belt conveyors
- Screw conveyors
- Flexible screw conveyors
- Sweep chain conveyors

DEHULLING EQUIPMENT

- Dehullers for:
  - oil chrushing plants
  - installations for dehulling a sunflower seeds for kernels
- High performance screen cleaner for separating into fractions
- Hulls beaters

TURN KEY SOLUTIONS

- Complete sunflower kernels processing installation
- Complete sunflower dehulling installation for oil-crushing plants
- Complete feed mill installation
- Complete seed preparation installation
- Complete silo plant with handling equipment
- Complete pulses processing installation

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