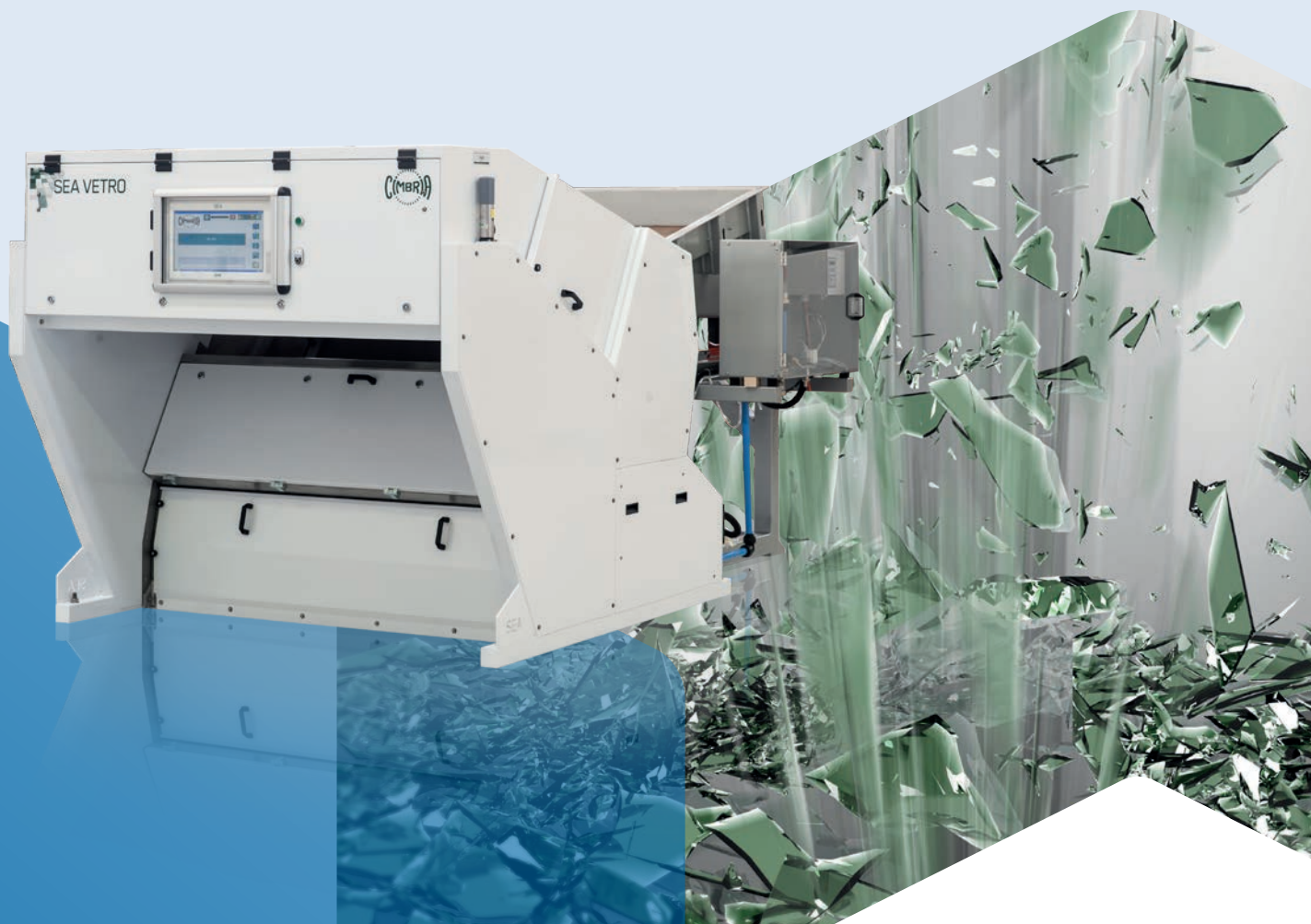


# SEA VETRO

ELECTRONIC SORTING 





# A NEW KICK-OFF FOR GLASS SORTING



## SEA VETRO

More than twenty years ago SEA developed and installed its first color sorter to remove ceramic, stones and other contaminants out of glass cullet.

Thanks to the ultimate RGB Full-color technology comes the SEA VETRO range of electronic sorters.

SEA VETRO is available into different models, where best performances and quality recovery of materials are granted through the best ultimate technology.



SEA VETRO

## SEA VETRO

### ELECTRONIC SORTING IN GLASS RECYCLING

Nowadays electronic sorting represents an essential phase of any container and flat glass recycling process.

Glass re-use as a secondary raw material is possible only after the removal of any contaminants (ceramic, stones, porcelain, metals, etc.).

Leaded glass and HR glass separation requirement becomes more and more frequent, while colour improvement and mix glass color sorting are standard requests from the market.

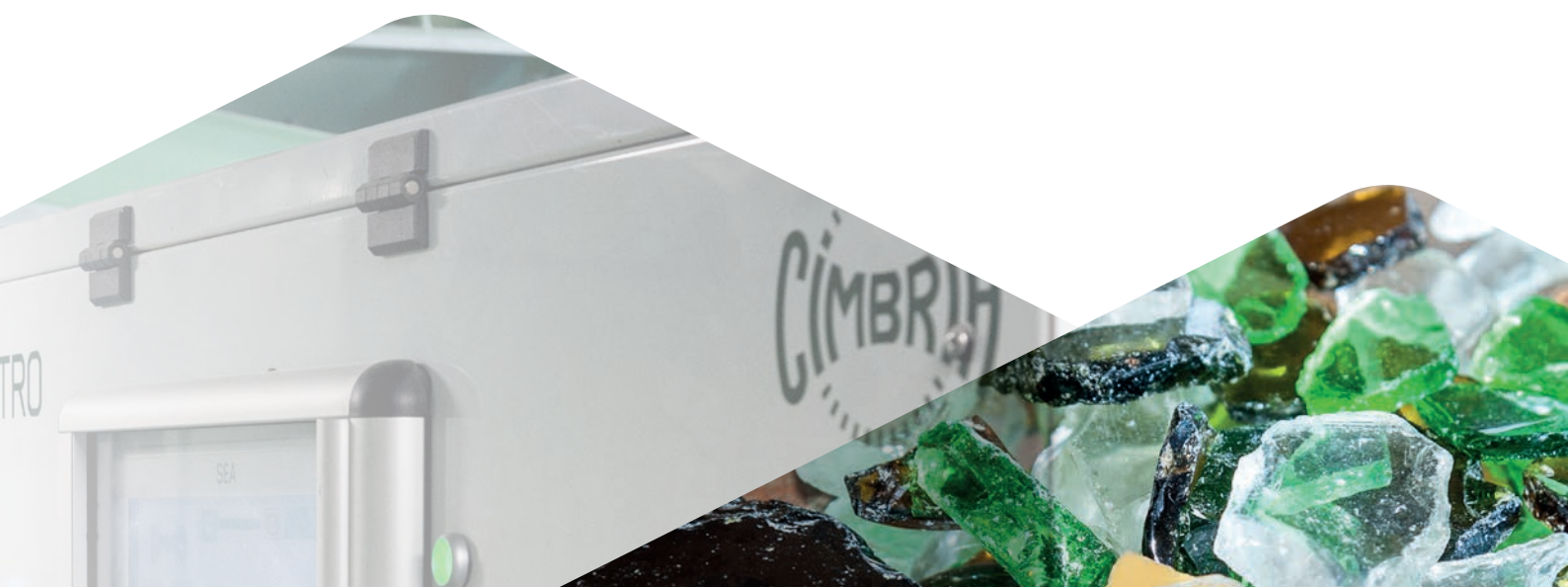
SEA VETRO represents the most suitable state-of-the-art solution for material sized from 1 to 50 mm.

Cullet sized over 10mm can be sorted both in dry and wet conditions, keeping unvaried the SEA VETRO sorter performances.

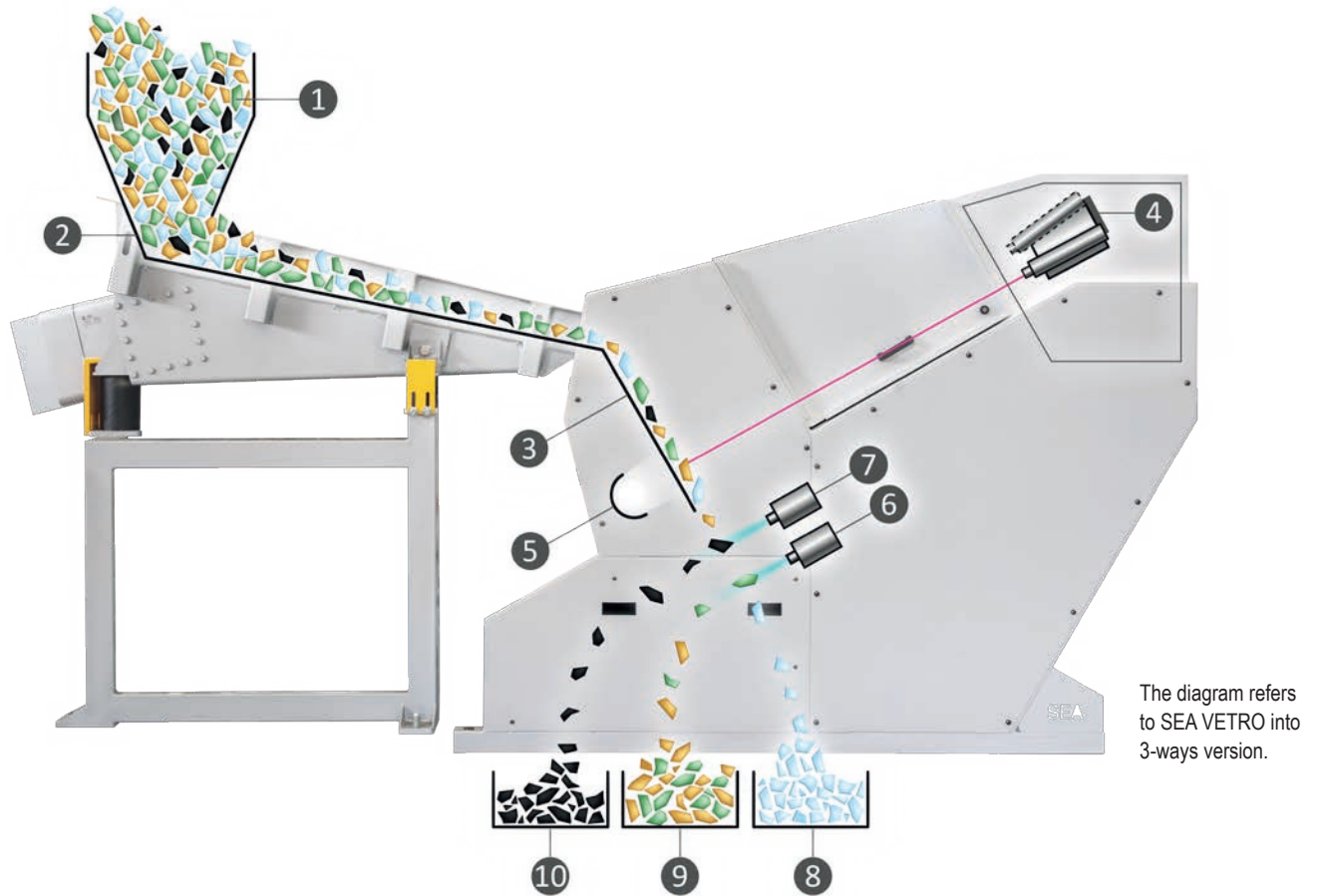
SEA VETRO is available in medium (M) and large (L) versions for different production capacities.

All models can be equipped with one or two lines of ejectors. The standard is the 2-ways version, thus two outlets for accept and rejected material.

The 3-ways version, with two lines of ejectors, separates the material simultaneously in three streams during a single pass.



## WORKING PROCESS



### OPERATION

- 1 ADDITIONAL INFEED HOPPER  
(NOT INCLUDED)
- 2 HORIZONTAL VIBRATING FEEDER
- 3 SLOPING CHUTE
- 4 RGB FULL-COLOR CAMERAS
- 5 LED LIGHTING AND  
BACKGROUND (UV NEON FOR  
LEADED GLASS VERSION)
- 6 EJECTORS
- 7 ADDITIONAL EJECTORS  
(OPTION)
- 8 ACCEPT
- 9 EJECTED FRACTION 1
- 10 EJECTED FRACTION 2

## MACHINE RANGE AND CONFIGURATIONS

MODEL	VETRO MC1 CSP / COLOR	VETRO MC2 CSP / COLOR	VETRO ML1 LEAD GLASS	VETRO LC1 CSP / COLOR	VETRO LC2 CSP / COLOR
CONFIGURATION					
VIBRATING FEEDER	Included	Included	Included	Included	Included
CHUTE WIDTH mm	1050	1050	1050	1650	1650
RGB CCD CAMERAS	2	2	2	3	3
EJECTORS	128	256	128	192	384
MAX THROUGHPUT ton/h	12*	12*	12*	18*	18*

\* Data can vary according to the characteristics of input material and its contamination rate.

MODEL	VETRO MC1	VETRO MC2	VETRO ML1	VETRO LC1	VETRO LC2
DIMENSIONS					
MACHINE WEIGHT kg	950	1100	950	1150	1300
FEEDER WEIGHT kg	600	600	600	900	900
WIDTH mm	1900	1900	2300	2300	2300
DEPTH mm	2100	2100	2100	2100	2100
DEPTH (including horizontal vibrating feeder) mm	3640	3640	3640	3640	3640
HEIGHT mm	1700	1700	1700	1700	1700
MACHINE POWER CONS. kW	1,0	1,0	1,0	1,5	1,5
FEEDER POWER CONS. kW	0,9	0,9	0,9	1,5	1,5
AIR CONS. l/sec	45	45	45	70	70

Machine power supply: 230 Vac (50÷60 Hz) single-phase. Feeder power supply: 400 Vac (50÷60 Hz) three-phase

The dimensions and technical data herein mentioned are indicative. Cimbria reserves the right to change them without any prior notice.

VETRO M

VETRO L



## MAIN FEATURES

### ULTIMATE FULL COLOR RGB CAMERAS

- SEA trichromatic sorters have RGB sensors with 0.2 mm resolution on color and shade and dimensional control;
- Camera scan rate is of 18.000 times/sec. (18 KHz);
- The inspection speed achieves 55 microseconds.

### LED LIGHTING AND BACKGROUND SYSTEM

- The LED lighting and background system, exclusively designed for SEA, allows the most precise focusing of the beam on the inspection line;
- The LED lighting allows long lasting and reliability (over 100.000 h working life) and low heat dissipation;
- UV neon for leaded glass version.

### SEA SOFTWARE

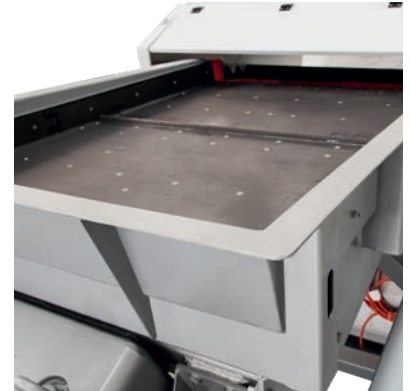
- The HSI system perceives the images detected by the RGB system almost as seen by human eye;
- The image processing system by photographic acquisition compares the object to user-defined accept or reject thresholds, in order to identify it as a real defect or as an accepted element;
- SEA VETRO sorters software allows the user to set the defect size, and it can recognize up to 16 families of defects;
- SEA VETRO software allows the separation of elements presenting different geometric characteristics, thanks to the shape-sizing integrated into the system.

### ELECTROMAGNETIC FEEDER

- The horizontal vibrating feeder allows the best accurate feeding and it is provided with wear resistant hardox cover;
- The feeding system can be separated in two sections to handle two different sized materials.

### ELECTRONICS – HARDWARE

- The SEA VETRO hardware is organized in easily replaceable electronic boards using the ultimate SMD and FBGA technologies;
- Self-control functions, such as auto-diagnosis and auto-calibration keep consistent sorting performance;
- Back-up of the operating software is possible by USB port on front panel PC;
- The high speed signal elaboration and communication to expulsion system allows an excellent performance.



## OTHER CHARACTERISTICS

### EJECTION SYSTEM

- State-of-the-art ejectors guarantee the most accurate precision and expulsion rapidity, producing highly concentrated rejects;
- The extremely fast ejectors are guaranteed for over 2 billions operating cycles and they can easily be repaired or replaced;
- Specially designed ejection device prevents delays and pressure drops.

### NEW 15 INCHES COLOUR TOUCH-SCREEN DISPLAY

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

### MECHANICAL DESIGN

- Pressurized and conditioned optical box prevents dust from entering the sensitive parts of the SEA VETRO sorters;
- Airtight structure prevents dust and product outflow;
- The two doors on top enable the opening of the sorter, facilitating its cleaning and maintenance;
- Water and air automatic cleaning system;
- The conditioning system allows the electronics inside the optical box to work at suitable working temperatures.

### METAL DETECTOR

- Metal detector available as option.



# SEA VETRO

EUROPEAN  
TECHNOLOGY  
MADE IN ITALY



## ADVANTAGES



- EXCELLENT SORTING PERFORMANCE
- MAXIMIZE THE VALUE OF GLASS PURITY
- FURNACE-READY GLASS CULLET
- CONCENTRATED REJECTS
- MINIMIZED LOSS OF GLASS
- OPERATIONAL RELIABILITY
- COST-EFFECTIVE TECHNOLOGY
- PRODUCTION COSTS SAVING
- VERSATILE AND USER-FRIENDLY TECHNOLOGY
- WARRANTY OF HIGH-VALUE GLASS CULLET
- HEAVY-DUTY MACHINERY
- LOW MAINTENANCE REQUIRED





## SEA VETRO APPLICATIONS

### SEPARATION OF CSP

- Ceramic
- Porcelain
- Stones
- Metal
- And others (Cork, Plastics)



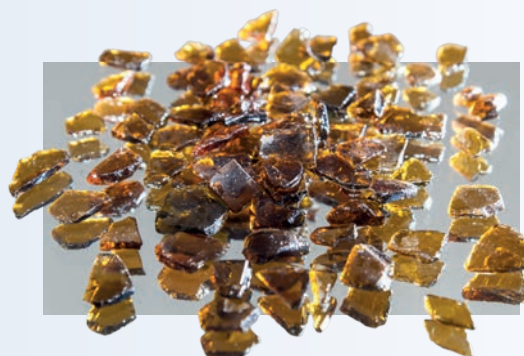
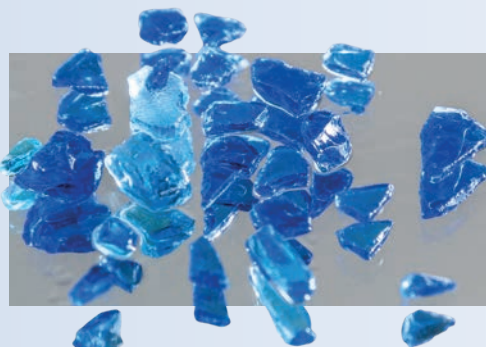
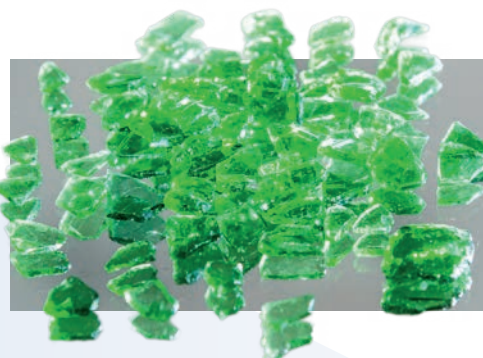
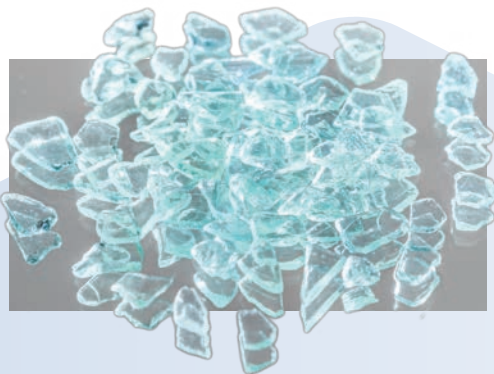
### COLOR IMPROVEMENT & COLOR SORTING

- Flint glass
- Amber glass
- Green glass
- And others (half white, blue)



### SEPARATION OF SPECIAL GLASS

- Leaded glass
- Ceramic glass (heat resistant glass)



Testing centers available in different countries for free of charge industrial tests.

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## AFTER-SALES SERVICE

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### START-UP & TRAINING

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

### REMOTE ASSISTANCE

SEA VETRO sorters can be accessed remotely through TEAMVIEWER.

By 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 the on-site service.

Cimbria SEA offers different yearly based servicing contracts for customer's peace of mind.

### SPARE PARTS

The user manual provides instructions and codes for spare parts request to Cimbria SEA.

Spare parts sets are available upon customer's request.



## INSTALLATIONS





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TOGETHER.**