

**“Sophisticated Sorting Eyes”
Cullet Separation System,
CELVSS,
developed by a glass
container manufacture**

TOYO GLASS
CELVSS[®]



Sorted cullet example
by CELVSS

CELVSS

Ceramic Lead Vision Separation System



TOYO GLASS MACHINERY CO., LTD.



TOYO GLASS CO., LTD.

1. Design based on unique algorithm

The algorithm has come from the combination of the technology accumulated for the development of bottle inspection machines and devices, and our knowledge about glass compositions and properties.



2. Sophisticated metal detector

It uses sophisticated metal detector solely developed by Toyo Glass. (patented)

3. LED light source

It uses a white LED emitter which is more reliable and has a longer life than a fluorescent lamp.

4. User-friendly control unit

It can designate a target cullet color simply by pressing a select button on the control unit.



5. Simple and tough structure

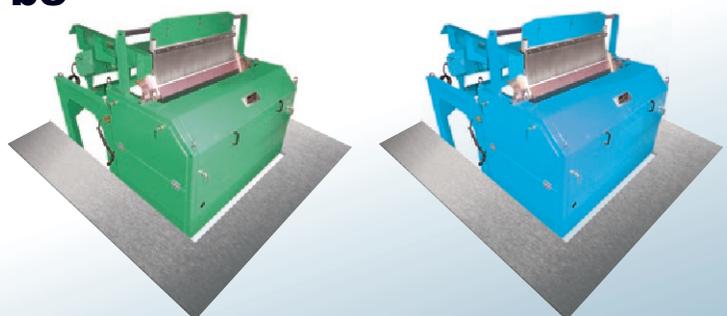
An easy-to-use and reliable feeder is used. Its structure is so simple that undesired cullet or particle is detected and rejected as collected cullet freely falls inside the machine. It can assure to prevent a trouble.

6. Solenoid valve analyzer

It uses solenoid valves which is possible to manufacture a sophisticated "CELVSS" and do maintenance easily.



7. Machine body color can be changed according to customer's request.



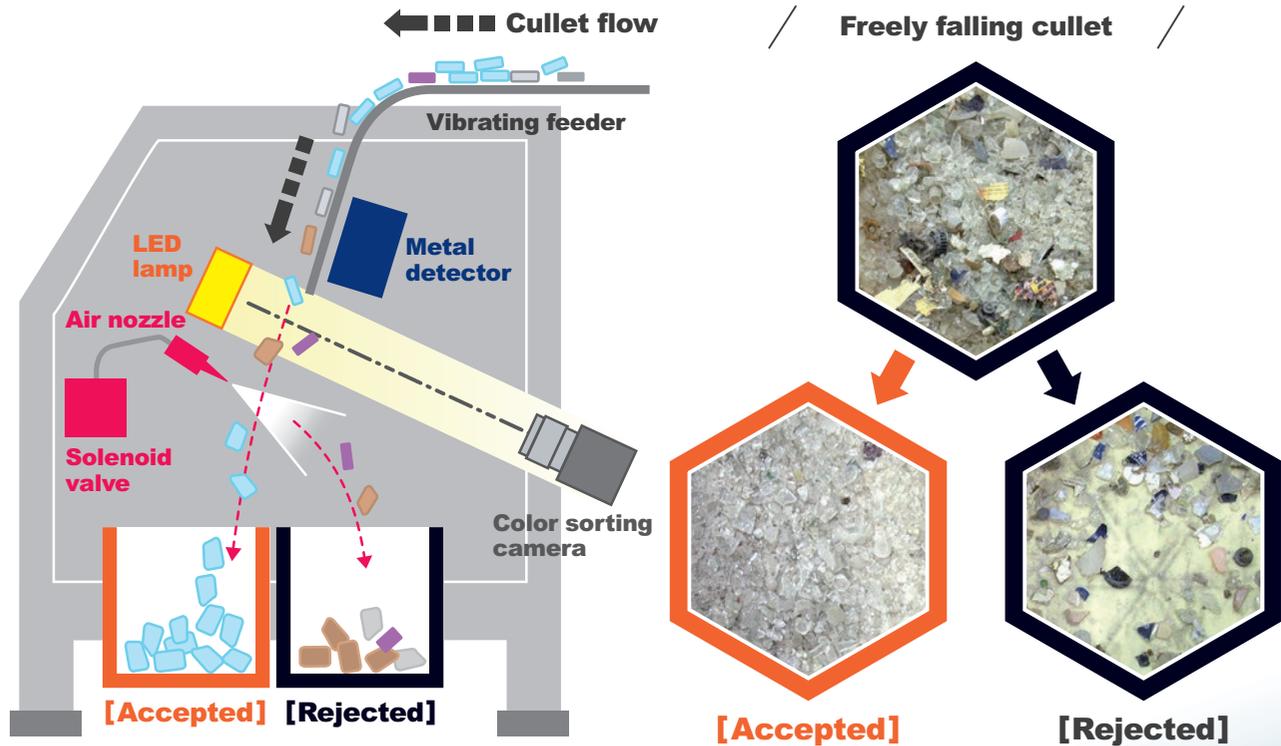
/ Color sorting mechanism /

“CELVSS” is a cullet foreign particle rejecter solely developed by Toyo Glass. It consists of 2 functions, metal detection by a metal detector and color sorting by a color sorting camera. Cullet charged into CELVSS from a vibrating feeder passes through the metal detector and then the color sorting camera. Detected foreign particles are rejected by blow-off air.

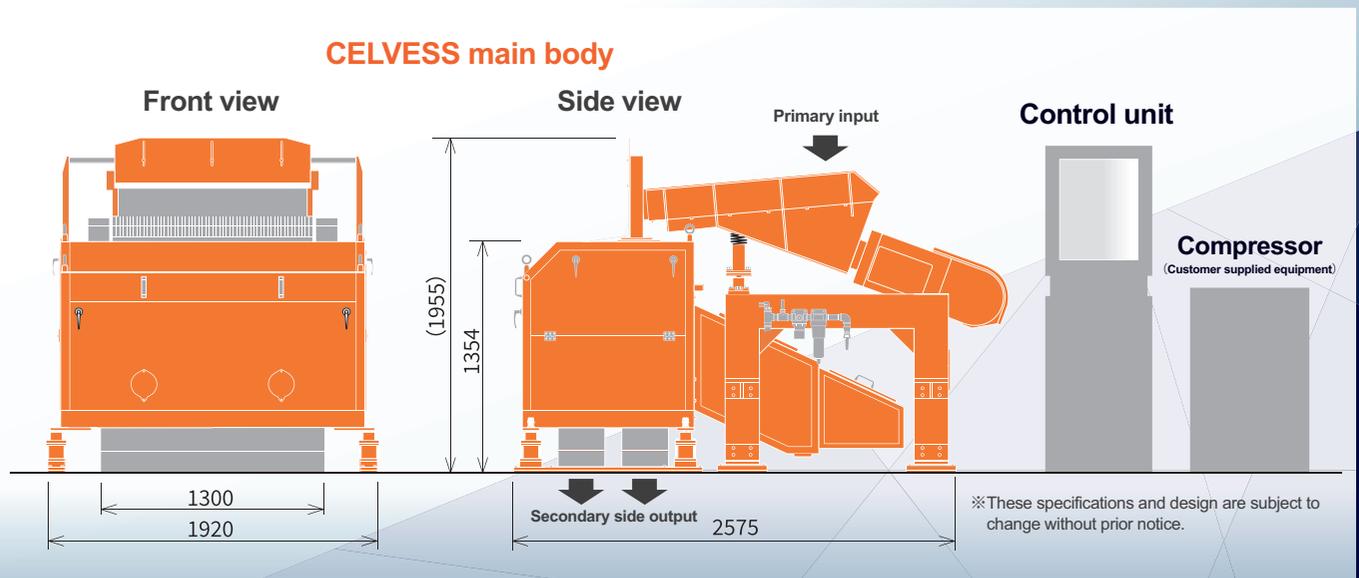
CELVSS standard type

Foreign particle removal from single-color cullet

Undesired colored glass and foreign particles (metals and ceramics) are rejected from single color cullet.



/ Equipment configuration / (unit:mm)



<Basic Specifications>

Object Color of Cullet	
1. Object Color of Cullet	Flint (Transparent), Amber (Brown), other colored cullet and opaque particle (details to be discussed)
2. Detectable Size of Cullet	6mm or larger – 30mm or shorter (less than 6mm cullet is not subjected)
Mechanical Specifications	
1. Processing Capacity	max.10ton/h, regular use. 8ton/h (maker recommended capacity) ※Subject to change depending on conditions of cullet
2. Way of Transfer	Vibrating Feeder (Variable Speed) Width: 1100mm
3. Rejection System	Pinpoint Air by 80 solenoid valves
4. Deliver to next process	Freely falling from duct ※Facilities after ducts are not included (Prepared by User)
5. Air Specifications	Not less than 0.6MPa Compressed Air (Prepared by User)
6. Air Supply Unit	40µm (Included)
7. Air Transfer Specifications	SPG25A (Internal Piping and Tubing are included)
8. Vibration Proof measure	Spring Vibration Isolator (Included)
Electrical Specifications	
1. Detecting System	Color Sorting by transmissive color Camera and Metal Detection
2. Control Unit	Target Cullet Color Sorting simply by pressing button
3. Main Alarm	Air Failure (less than 0.4MPa) / Internal Alarm can be set by Control Panel.
4. Secondary Electric Wiring Work	Dedicated cables are included, which connect Control Unit with such a main unit as Light Source, Color Sensor Camera and Solenoid Valve.
Others	
1. Electrical wiring	Grounding work to be conducted by user
2. Painting Color	Machine body: Standard color (orange) or any color designated by user Control unit: Control unit maker's standard color



Remark

Less than 6mm cullet and foreign particles of powder or granulation shall not input. Foreign particles such as metal, cap and paper shall be rejected prior to cullet input into CELVSS to ensure the best sorting performance of CELVSS. Sorting accuracy of CELVSS is highly influenced by quality of cullet charged into CELVSS.



Maintenance

A yearly periodical maintenance recommends to maintain machine performance. CELVSS shall be done an appropriate parameter adjustment to adjust a change of source cullet, cullet quality requirement, degradation of light source and change of an ambient environment. Shall be done



Introduction schedule

Production will be started after a specification meeting with customers, quotation submission and conclusion of a contract.
Production period: Approximately four months
A test run of before and after delivery, operator education and so on: Approximately one month

 **TOYO GLASS MACHINERY CO., LTD.**

Address : 1-1-70 Yako, Tsurumi-ku,
Yokohama 230-0001, JAPAN

URL: <https://www.tgm-co.com>

 **TOYO GLASS CO.,LTD.**

International Department

Address : Osaki Forest Bldg., 2-18-1 Higashi-Gotanda,
Shinagawa-ku, Tokyo 141-0022, JAPAN

URL: <https://www.toyo-glass.co.jp>