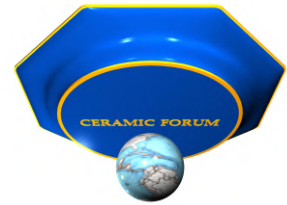
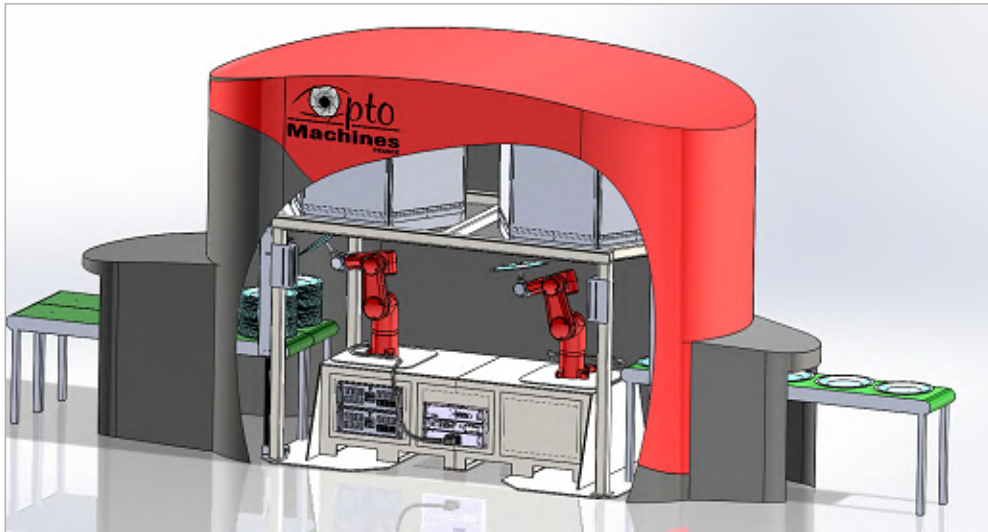


# CV3G



A state-of-the-art inspection & sorting machine for ceramic products



**Market trends are forcing the ceramic industry to manufacture high-quality products to sell at competitive market prices by using fewer resources. Faultless product quality is a fundamental and self-evident standard in the sector which requires total control of the finished product.**

### Challenge

Imperfections are intrinsic to the different steps of the production process (molding, firing, glazing). The results are more or less visible defects on geometry or surface quality of the finished product. As the final customer expects a certain degree of quality the product must be analyzed and classified on the base of various criteria.

Usually analysis and classification are made manually. This includes high operating costs and a lack of reliability leading to unsatisfied customers.

### Our solution

OPTO machines provides a high performing entirely automated inspection and sorting machine to optimize your production process while mastering quality control. Our CV3G offers a wide range of application from tableware to bowls.

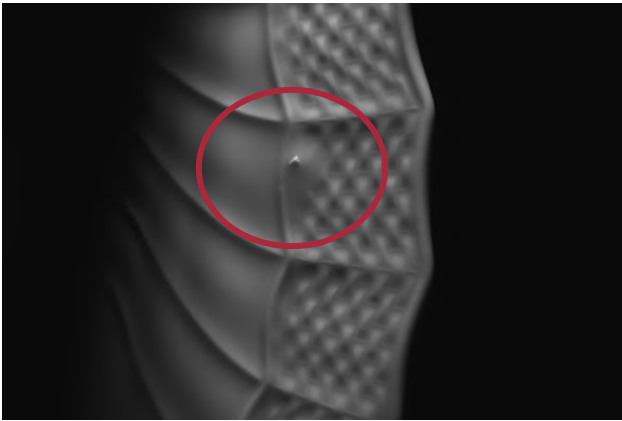
Equipped with high-performance robots the fully automated CV3G is easily integrable into any production line regardless the production rate.

High-performance cameras inspect each section of the product and detect all sorts of possible defects on different textures and complex multidimensional shapes. Depending on predefined criteria the sorting products are piled up in categories.

The CV3G design targets ultimate autonomy. The self-programming and self-learning system memorizes new forms and user-made programming becomes unnecessary. The HMI is conceived for easy and intuitive use by any operator.

### Main benefits:

- Complete inspection, all sorting criteria included
- Self-programming & self-learning system for memorizing and mastering new objects and forms
- Fully automated inspection 24/7
- Analyzing different kinds of texture on the same object
- No civil engineering works for installation
- Data recording for time-delayed deep analysis
- User-friendly
- Environmentally friendly



Deactable defect: grain on relief



Inside CV3G: Staubli robot & laser

### Features & main functions

The fine-tuned interaction of three elements – high-capacity robots, image processing and monitoring – makes the unique performance of the CV3G.

#### 1. Robotics:

- 2 Staubli TX2-60 high speed robots
- high production rate 400-700 p/h by low consumption
- adaptable to a wide range of shapes

#### 2. Image processing:

- image acquisition under ideal conditions by high-resolution & high-speed cameras
- defect identification by sophisticated algorithms

#### 3. Monitoring:

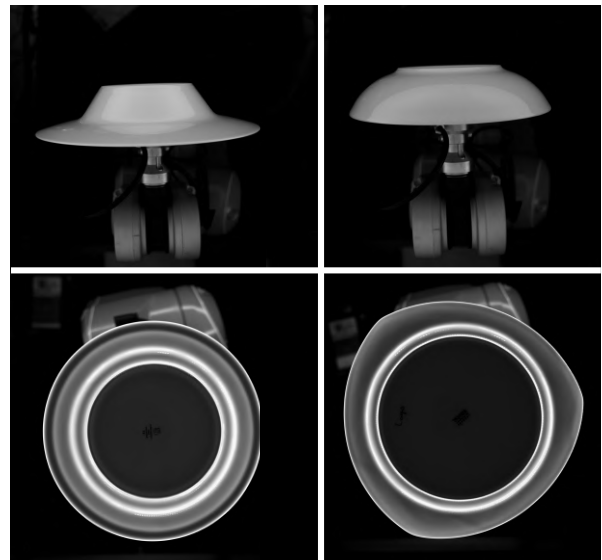
- artificial intelligence inside
- self-learning & self-programming machine
- no skilled operator required for new shapes
- adjustable tolerances for all sorting criteria
- data recording for analysis going beyond simple diagnostics, helping to find upstream deficiencies

### Dimensions

- Height: 2,9 m
- Length: 4,6 m
- Width: 2,1 m
- Weight: 1,5 t
- The length and the height of entry and exit conveyors is adjustable depending on the needs of the customer.

### Types of detected defects

- Geometry: general dimensions, completeness and deformation of the shape
- Surface damages: cracks, chips and fractures
- Surface deterioration: grains, pinholes, stains, scratches
- Glaze quality: drops, gloss, texture
- Back-stamp checking: presence, darkness, completeness
- Top class: white defects on white relief, available now



*The French company OPTOmachines is a renowned specialist for industrial sorting equipment with a broad and unique know-how of tableware inspection including flatware and hollow-ware as cups and bowls. Since 2000 OPTOmachines has developed and supplied numerous equipments for automatic inspection of glazed flatware. With the new CV3G three generations of machines have been marketed until now. Most of our customers are well-known tableware producers in Europe having great expectations regarding reliability and optimal payback guaranteed by the high automation level of their factories running 24 hours a day.*