

# TABLET IMPRINTING SYSTEM

with INSPECTION FUNCTION

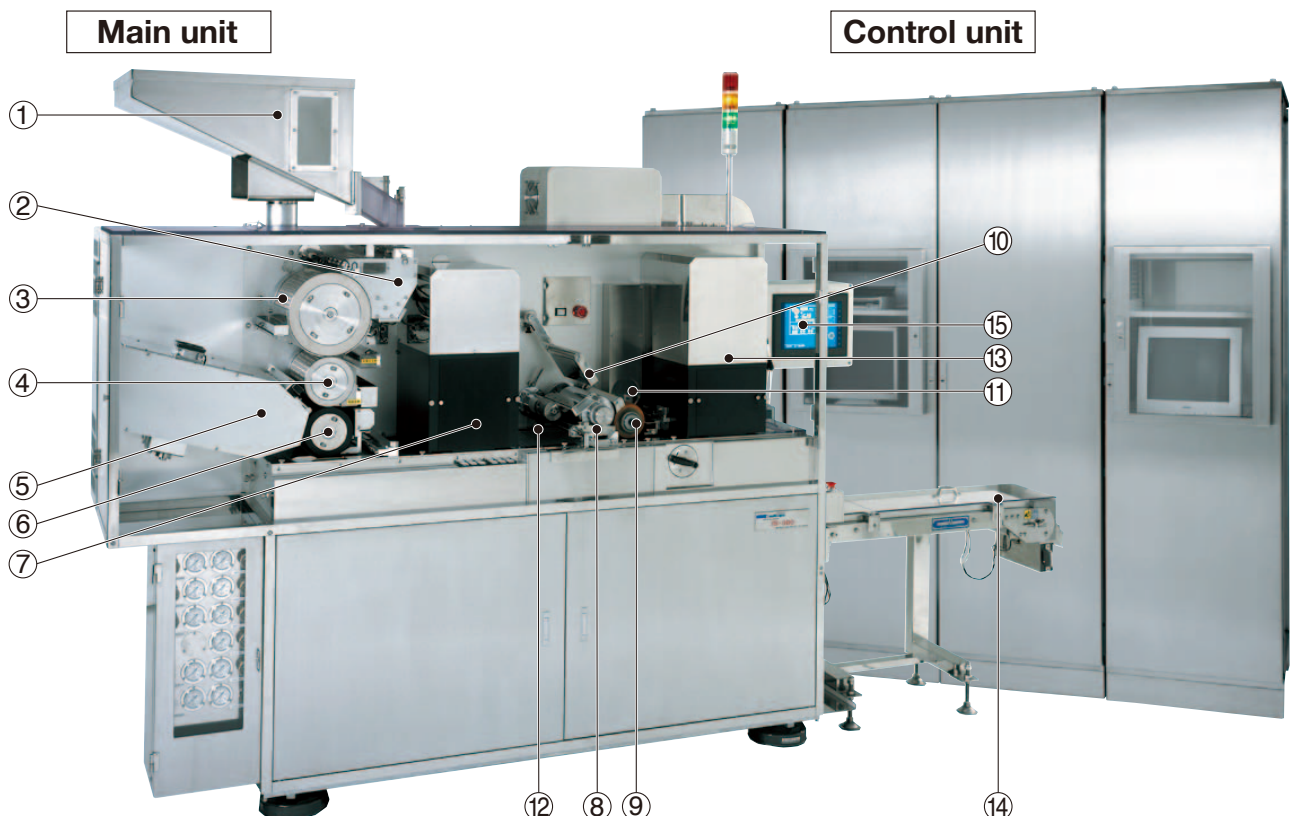


# TABLET IMPRINTING SYSTEM

## with INSPECTION FUNCTION

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Qualicaps is committed to leveraging its extensive capsule manufacturing technologies to research and develop new products, improve pharmaceutical manufacturing systems, and provide customers with higher-quality capsules. We are proud to introduce a new multifunctional tablet imprinting system developed by adding optical inspection and imprint inspection functionality to our conventional tablet/soft capsule imprinting and tablet optical inspection systems.



### Main unit:

- |                    |                                      |                       |  |
|--------------------|--------------------------------------|-----------------------|--|
| ① Product hopper   | ⑤ Inspection unit for rear surface   | ⑨ Rubber roll         | ⑬ Inspection unit for imprinted character inspection |
| ② Service hopper   | ⑥ Inspection roller for rear surface | ⑩ Blower unit         | ⑭ Drying and Discharging belt                        |
| ③ Feed drum        | ⑦ Inspection unit for front surface  | ⑪ Rubber roll cleaner | ⑮ Operation panel                                    |
| ④ Rectifier roller | ⑧ Die roll                           | ⑫ Slats               |  |

### Unattended operation for high-speed processing

The system delivers high-speed processing of 500,000 tablets per hour thanks to a proprietary vertical feed system that delivers a 100% feed rate. Operation is as follows:

1. Rear surface inspection
2. Front surface(imprint surface)inspection
3. Imprinting
4. Imprint quality inspection

### Simple setup

Automated attachment and removal of the slats used to horizontally transfer tablets makes it easy to change the type of tablet being processed.

### Full-featured inspection functionality (100% inspection)

The front and rear surfaces of tablets are subject to an optical inspection before imprinting as well as a imprint quality inspection immediately after imprinting.

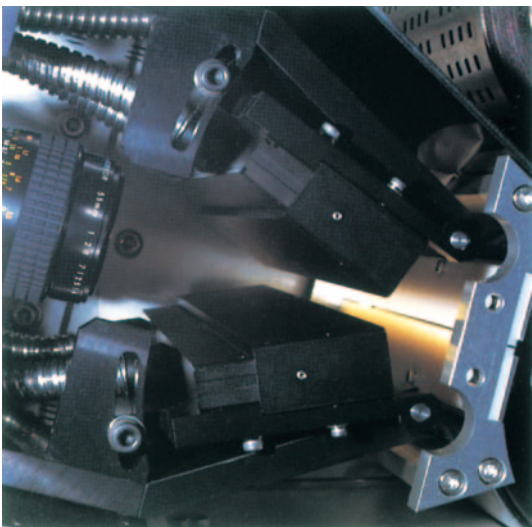
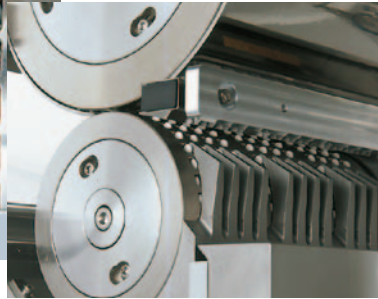
# Features



## ① Vertical supply and alignment

### (rotation from vertical to horizontal orientation)

Qualicaps's proprietary vertical supply pocket system ensures a 100% feed rate. Tablets are aligned horizontally before being transferred to the next process (rear surface inspection).



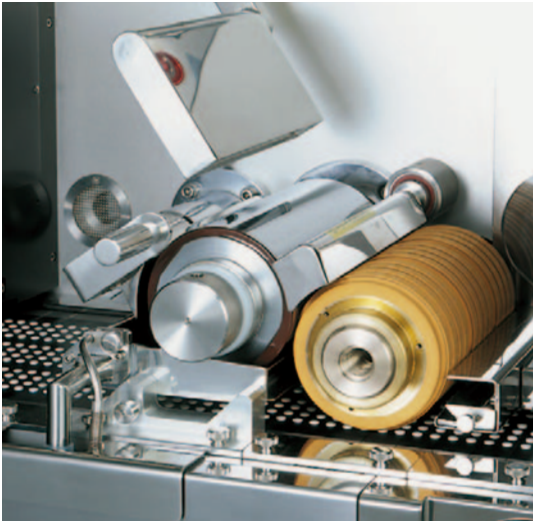
## ② Rear surface inspection (100% coverage)

After alignment (rotation from vertical to horizontal orientation), the unimprinted tablets are held by suction inside pockets in the inspection roller and illuminated with a uniform light source while a 5,150-element CCD line sensor camera inspects their rear surfaces.



## ③ Front(imprint)surface inspection (100% coverage)

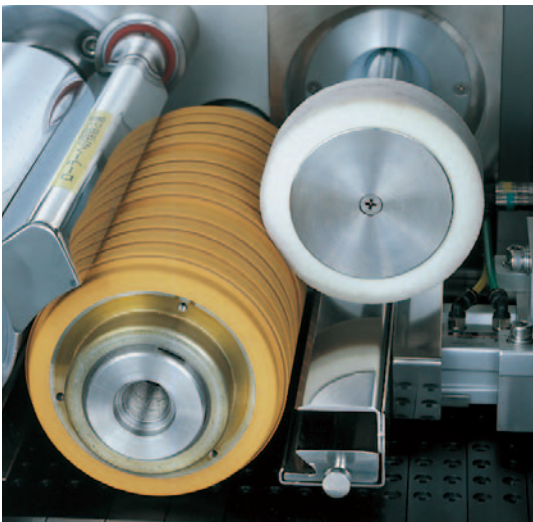
A 5,150-element CCD line sensor camera inspects the front surfaces of the tablets from above as they are transferred horizontally on slats.



#### ④ Transfer and imprinting

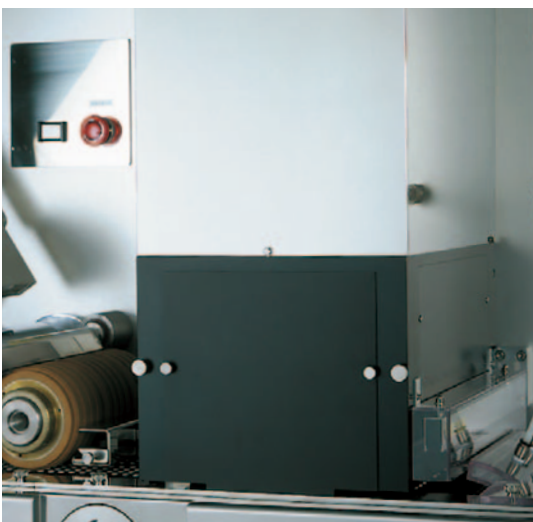
Due to the shape of the tablets, horizontal transfer on slats ensures steady movement and high imprint quality. Having been positioned precisely and horizontally aligned, the tablets are now imprinted with a die roll onto which the desired text or logo has been etched and a rubber roll with which the imprint is transferred.

Imprinting ink is maintained at constant viscosity by the system's built-in automatic viscosity control unit. An air blower unit ensures that even detailed text and logos appear sharp and crisp.



#### ⑤ Cleanup

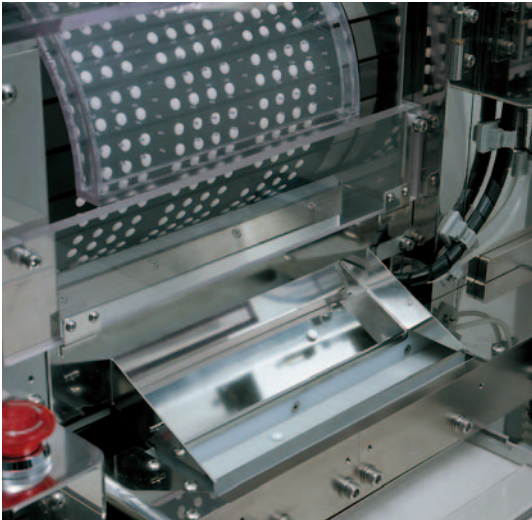
An alcohol-moistened sponge cleans the rubber roll surface automatically at a user-defined interval. The sponge is stored inside the unit, where it is cleaned with an automatically circulating alcohol-based solution in preparation for the next cycle.



#### ⑥ Imprinted character inspection (100% coverage)

A CCD area sensor camera positioned above each row of imprinted tablets being horizontally transferred on slats performs a high-precision inspection to detect missing text, misalignment of imprint, lack of imprint, and other defects.





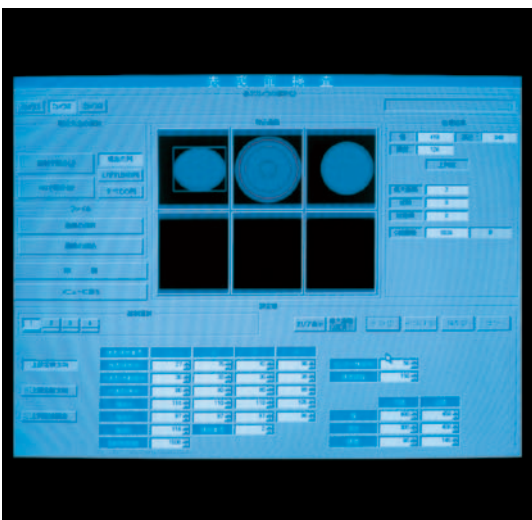
#### ⑦ Ejection of defective/non-defective tablets

A computer-generated eject signal triggers the pneumatic ejection into defect bins of individual tablets for which rear surface, front surface, or imprint defects were detected. Non-defective tablets are routed to a special belt. (The system comes standard with a defective tablet ejection confirmation unit.)



#### ⑧ Slat attachment and removal

Qualicaps's automatic slat attachment/removal feature shortens the time required to replace the system's many slats when changing tablet types or cleaning. This feature enables all slats to be attached or removed in about 20 minutes. (Slats are easily positioned and held in place by permanent magnets.)



#### ⑨ Front and rear surface inspection screen

- The front and rear surfaces of each of 12 rows of tablets are inspected by 3 cameras each.
- Proprietary image processing software enables high-speed, high-precision inspections.
- Image being processed can be paused on the monitor for operator confirmation of inspection results.
- The differential processing defect extraction level can be set independently for 4 selected tablet regions consisting of concentric circles.

## Utilized mechanism

Formula	Imprinting	Both sides inspection	Imprinted characters inspection	Side surface inspection
I	●	●	●	●
II	●	●	●	
III	●	●		
IV	●		●	
V	●			

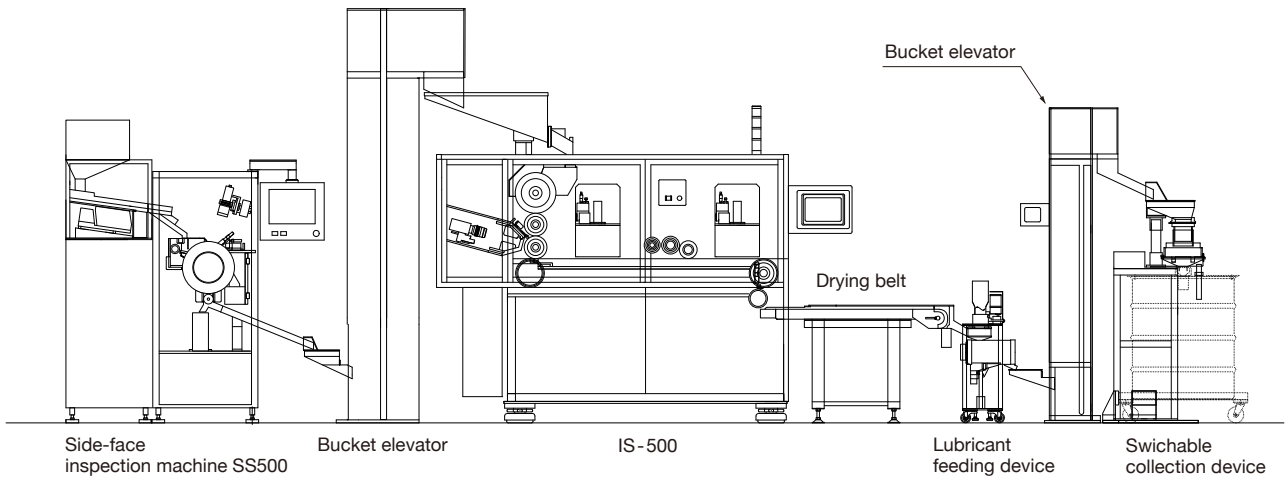


## Specifications

- Overall dimension
  - Main unit : Width 3,350 mm × Depth 930 mm × Height 1,660 mm (excluding hopper)
  - Control unit : Width 2,400 mm × Depth 600 mm × Height 1,900 mm
  - Side surface inspection device (Option) : Width 600 mm × Depth 800 mm × Height 1,900 mm
- Weight
  - Main unit : 2,500 kg      Control unit : 1,000 kg      (Side surface inspection device : 500 kg)
- Production capacity
  - Maximum ; 500,000 tablets / hour (Tablet diameter ; 5~8 mm)
- Applicable tablets
  - Coated tablets and film coated tablets (Oblong shapes are acceptable)
  - Diameter 5~10.5 mm, Thickness 2~5 mm (Special sizes are acceptable)
- Imprinting
  - One-side imprinting (In case of both side imprinting, ask our technician.)
- Optical inspection method
  - 100% inspection can be done by 5150 elements CCD line sensor camera
- Imprinted characters inspection method
  - 100% inspection can be done by CCD area sensor camera
- Inspection item
  - Appearance : Crack, Foreign material (over 50 $\mu$ ), Speck (over 50 $\mu$ ), Scraped, Deformation, Different color, etc.**
  - Imprint : Insufficient imprinted character, No imprint, Position sliding, etc.**
- Utility
  - Electricity : 3 phase      200 V  $\pm$ 10%      50/60 Hz      5.0 KVA
  - Single phase      100 V  $\pm$ 10%      50/60 Hz      6.5 KVA
  - Vacuum :              25 kPa      15 m<sup>3</sup>/min
  - Compressed air : 0.5 MPa      1.0 m<sup>3</sup>/min



## Line layout pattern of imprinting-and inspection-machines





## GLOBAL NETWORK

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