



NFA Partnership

# Automatic Tablet & Capsule Inspection Machine

SELMA series

VISION INSPECTION SYSTEM



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# Company History

- 2000.07 ○ 1<sup>st</sup> Generation  
Empty capsule inspection machine
- 2003.12 ○ Developed  
Image processing board & IT DSP chip
- 2005.12 ○ Developed  
BLU screen inspection machine
- 2006.09 ○ Developed  
FPCB external inspection machine
- 2007.04 ○ 2<sup>nd</sup> Generation  
Tablet inspection machine
- 2009.07 ○ 3<sup>rd</sup> Generation  
Tablet inspection machine
- 2012.01 ○ 4<sup>th</sup> Generation  
Tablet & Capsule inspection machine
- 2016.04 ○ 5<sup>th</sup> Generation  
Tablet & Capsule inspection machine
- 2018.01 ○ 6<sup>th</sup> Generation  
Tablet & Capsule inspection machine
- 2019.02 ○ 7<sup>th</sup> Generation  
Tablet & Capsule inspection machine

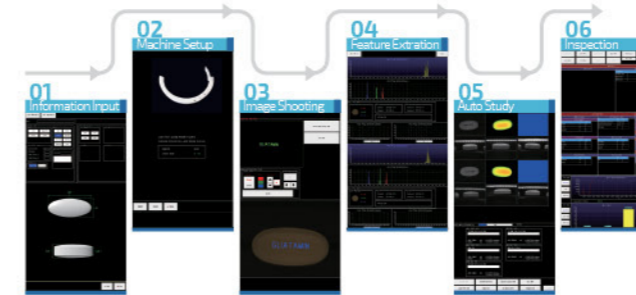
# Company Patents



# USER FRIENDLY INTERFACE DESIGN

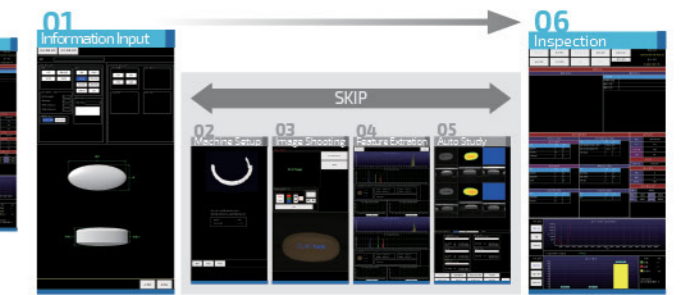
## New Tablet (Capsule)

Setup : 30 mins



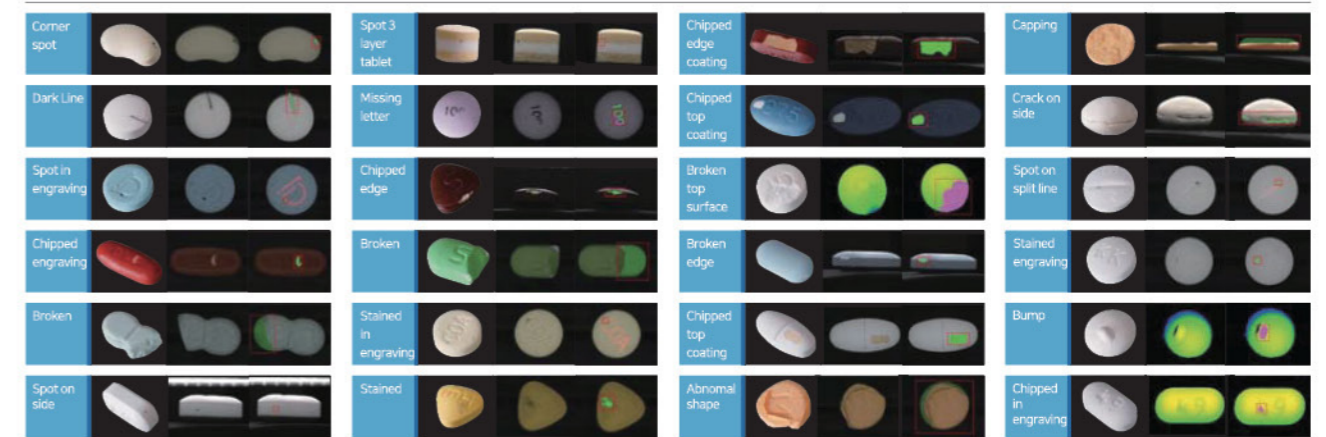
## Registered Tablet (Capsule)

Setup : 5 mins

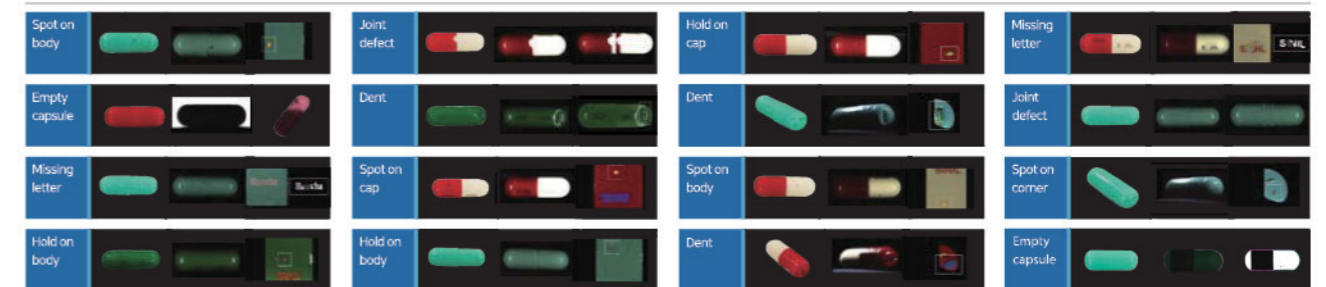


# DEFECT INSPECTION RANGE

## Tablet



## Capsule



# Global Partnership

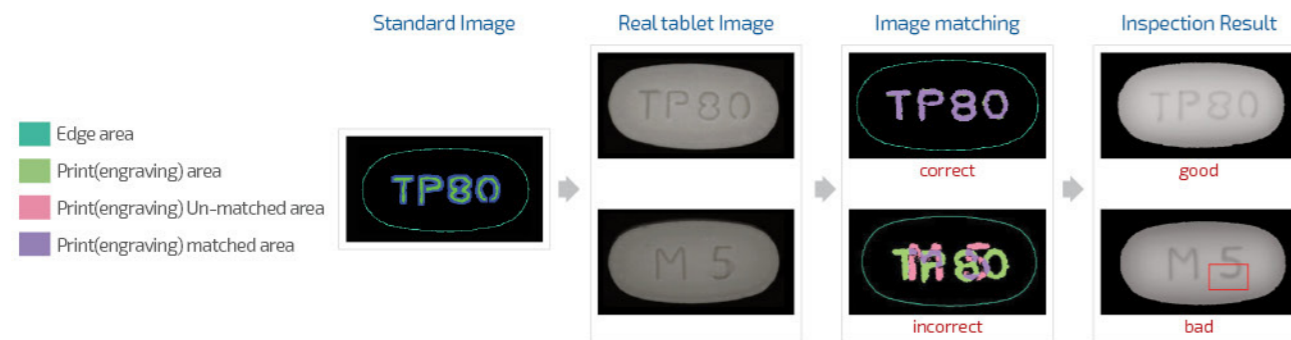
- Korea, Japan, China, Thailand, Myanmar, Singapore, Malaysia, Indonesia, Australia, New Zealand, Bangladesh, India, Pakistan, Sri Lanka, Jordan, Saudi Arabia, Arab Emirates, Iran, Egypt, USA, Mexico, Argentina, Uruguay



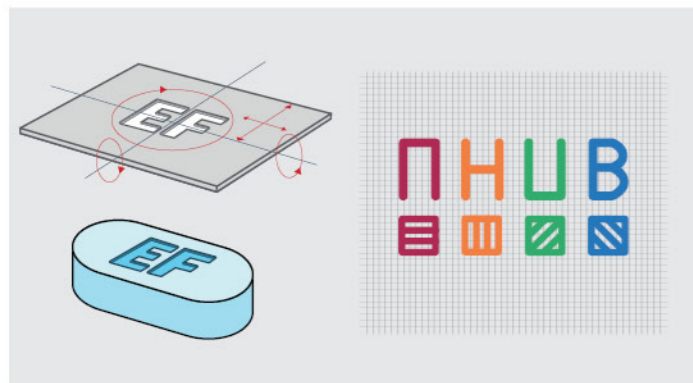
# INSPECTION TECHNOLOGY

**Step 1** Set a standard image with tablet(capsule) features such as size, shape, print, engraving, color and etc.

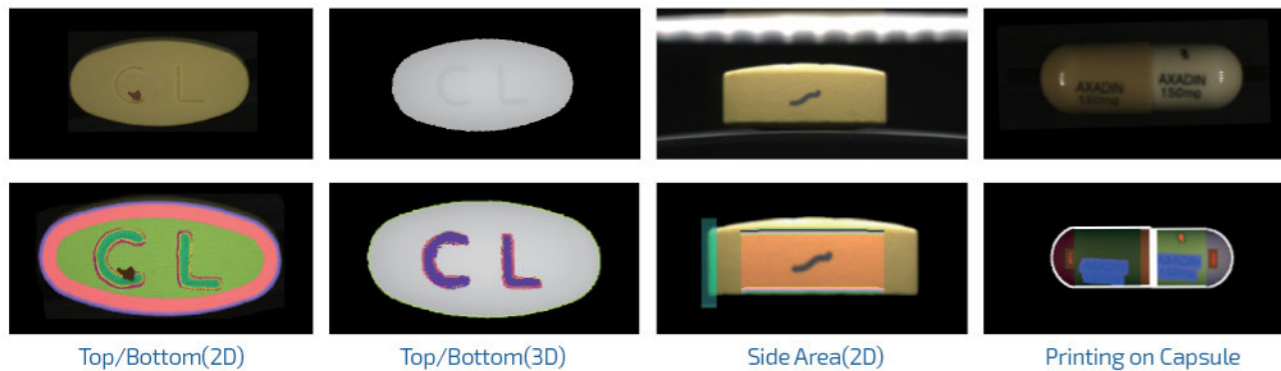
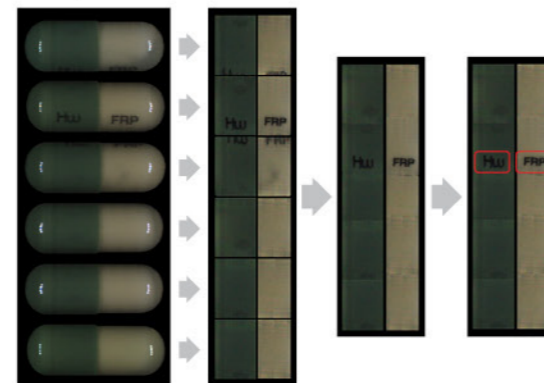
**Step 2** Compare the standard image with real tablet(capsule) capture image to pick out defects



**Tablet**  
Recognize the engraving as "shape" not pixel size

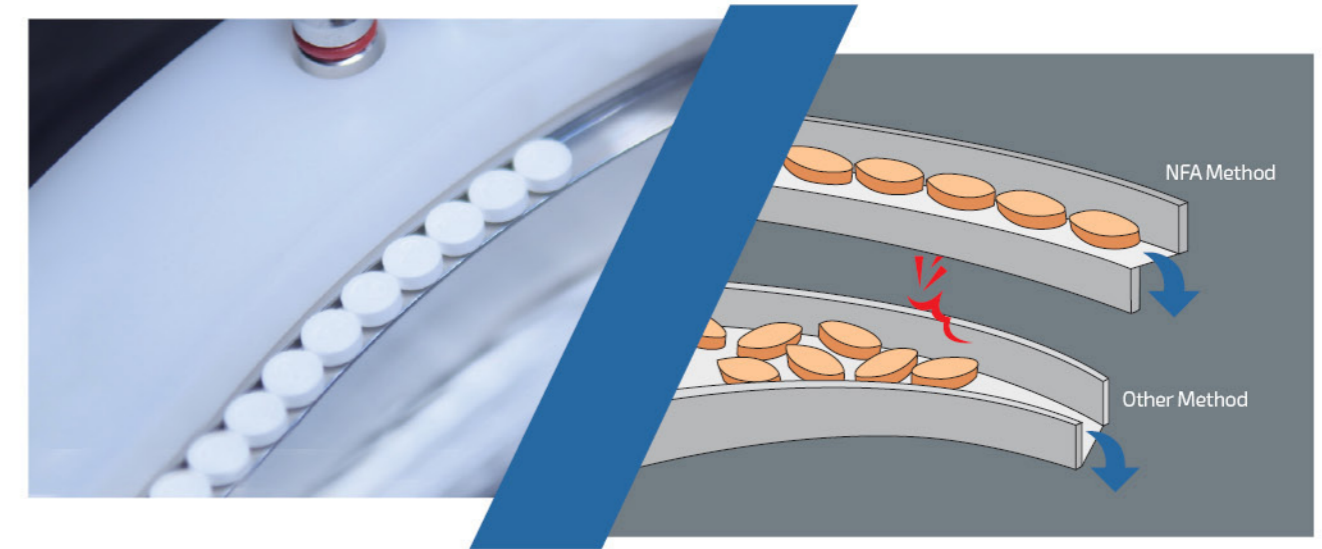


**Capsule**  
Arrange capsule images into one image (body & Cap each)



# INSPECT TABLET & CAPSULE IN A SINGLE MACHINE

## Anti-jamming Design



## Inspect variety of Tablet & Capsule (Change Part)



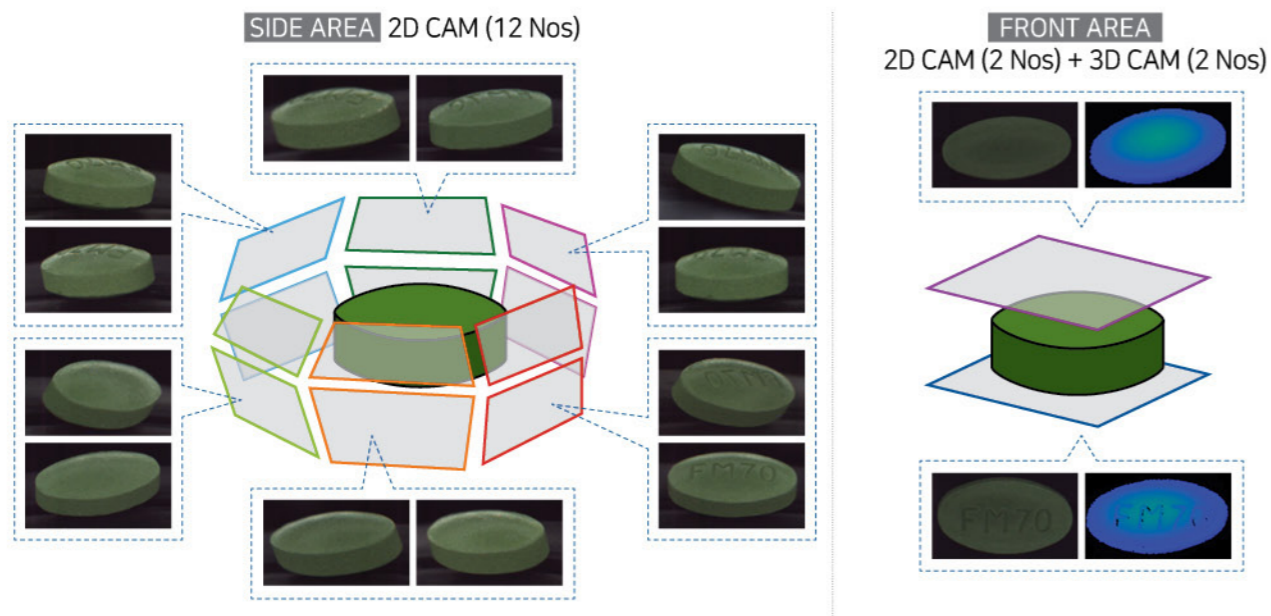
**Same Diameter(Width) = Same Change Part**

Do NOT need to replace change parts for same diameter(width) of tablet & capsule.  
Replace only 3 pieces, when diameter (width) is changed.

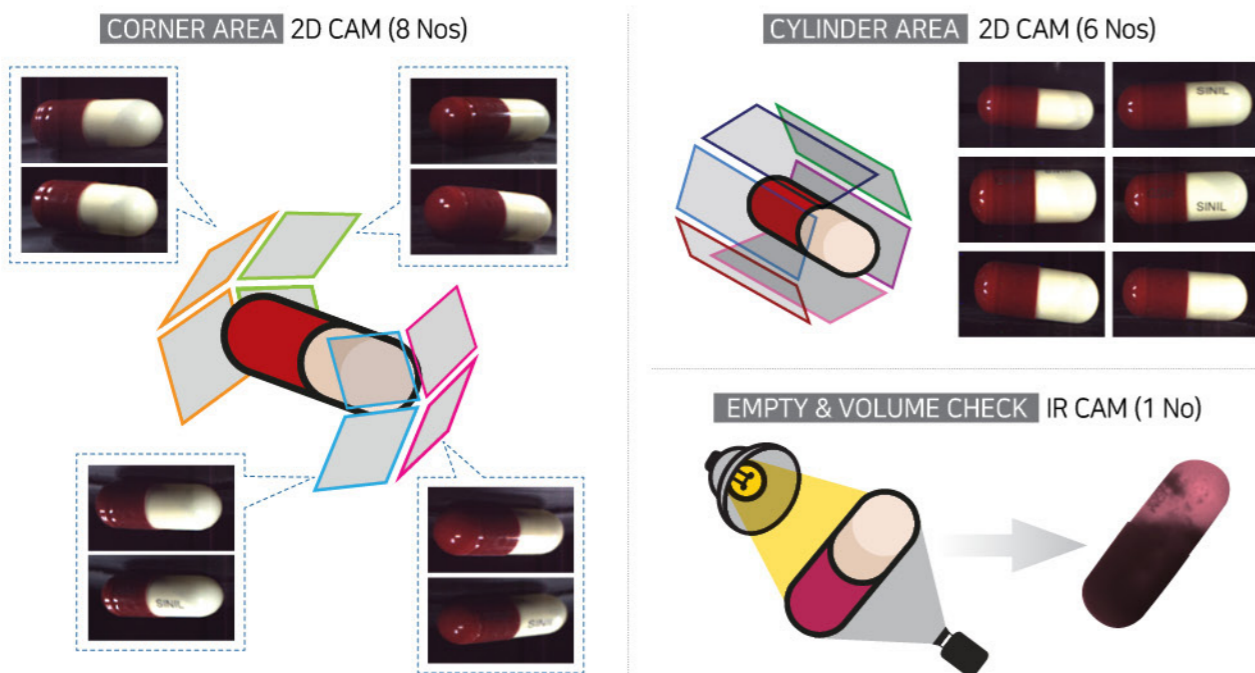


# SELMA200 (7<sup>th</sup> GENERATION)

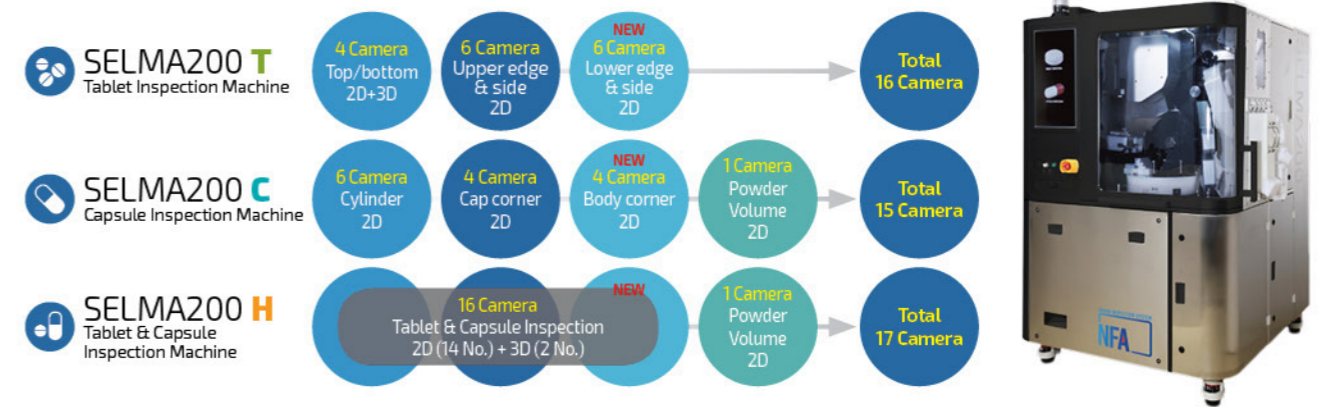
## Tablet Camera position (Total 16 camera)



## Capsule Camera position (Total 15 camera)



## Camera Composition | SELMA200



## Inspect Capacity

| Capacity   | Tablet(length) |           |           |         |         |
|------------|----------------|-----------|-----------|---------|---------|
| Size       | Round 5mm      | Round 8mm | Oval 14mm |         |         |
| Max (hour) | 500,000        | 400,000   | 190,000   |         |         |
| Capacity   | Capsule(size)  |           |           |         |         |
| Size       | No.4           | No.3      | No.2      | No.1    | No.0    |
| Max (hour) | 200,000        | 185,000   | 170,000   | 155,000 | 145,000 |

\* The maximum speed can be different depending on the inspection condition of tablet(capsule)

## Environment

|                      |                       |
|----------------------|-----------------------|
| Electric Consumption | 7kW                   |
| Compressed Air (Dry) | 5~8 bar               |
| Temperature Humidity | 10~30℃/30~70%         |
| Pneumatic Pressure   | ≥0.35MPa              |
| Material             | SUS 304, SUS 316, UPE |

## Inspection Range

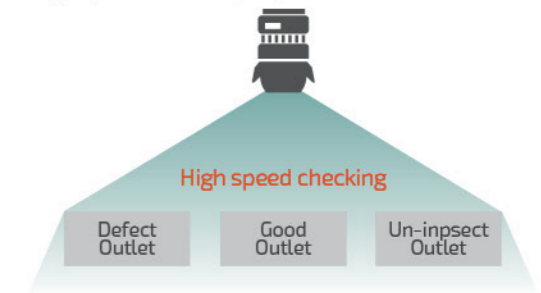
|                   | Tablet   | Capsule   |
|-------------------|--|---|
| Type              | Uncoated<br>Film-coated<br>[Option] Sugar-coated                           | Hard gelatin  |
| Size              | Length : 5 ~ 24mm<br>Width(Diameter) : 5~12mm<br>Height(Thickness) : 2~8mm | Size : 0, 1, 2, 3, 4<br>[Option] Size 00 and Size 5 |
| Camera Resolution | 25μm   |   |

\* At least 0.6mm gap between width & height should exist for tablet inspection.

※ The above specifications and capacities can be changed without notification for the reason of technical improvement.

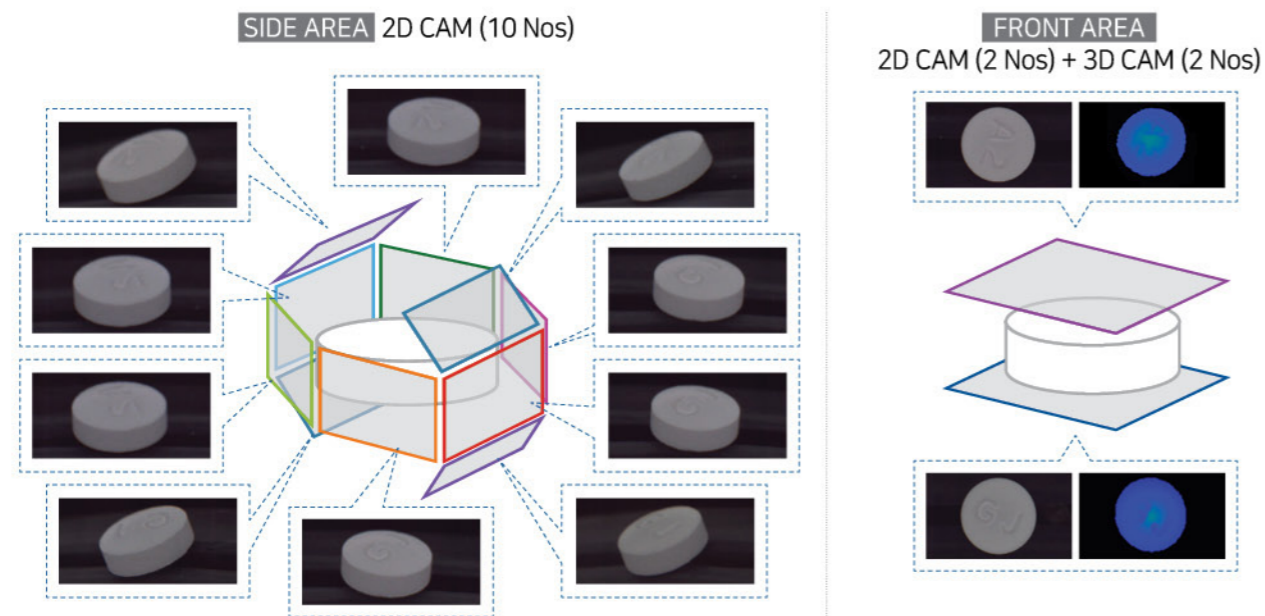
## NEW Option

**Discharge Check Camera**  
Prevent good & defect products mixed-up using high speed camera (1 No)

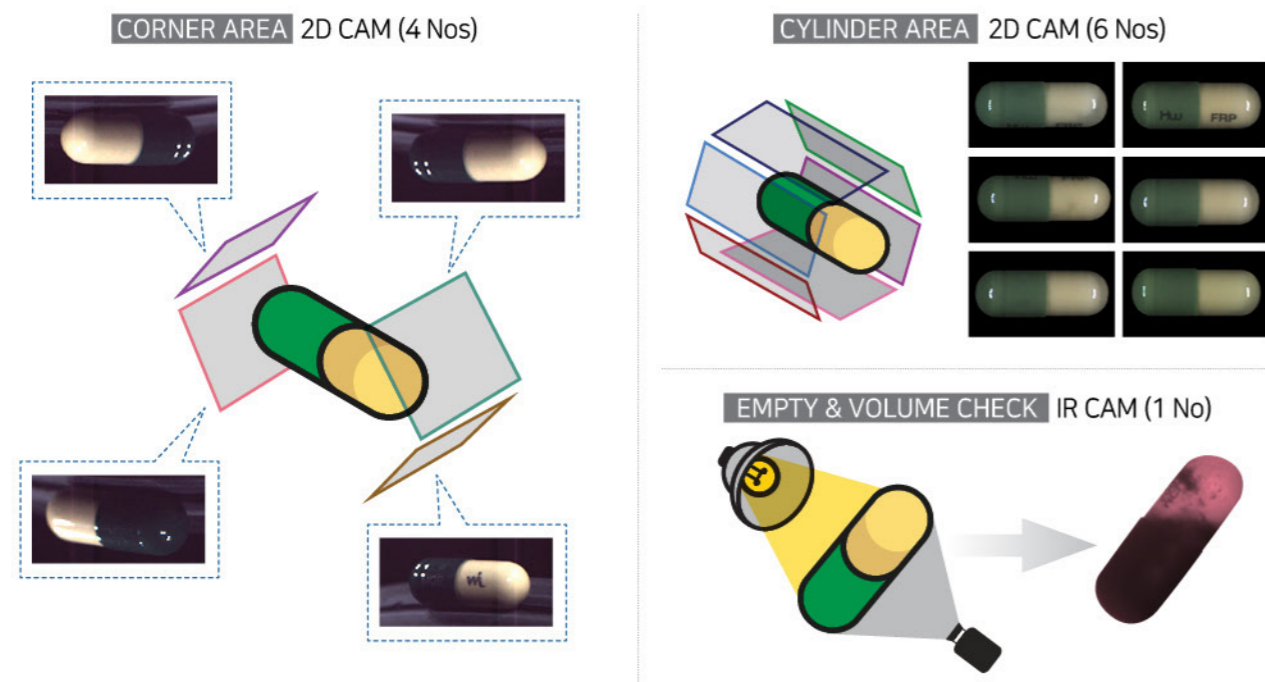


# SELMA150 (6<sup>th</sup> GENERATION)

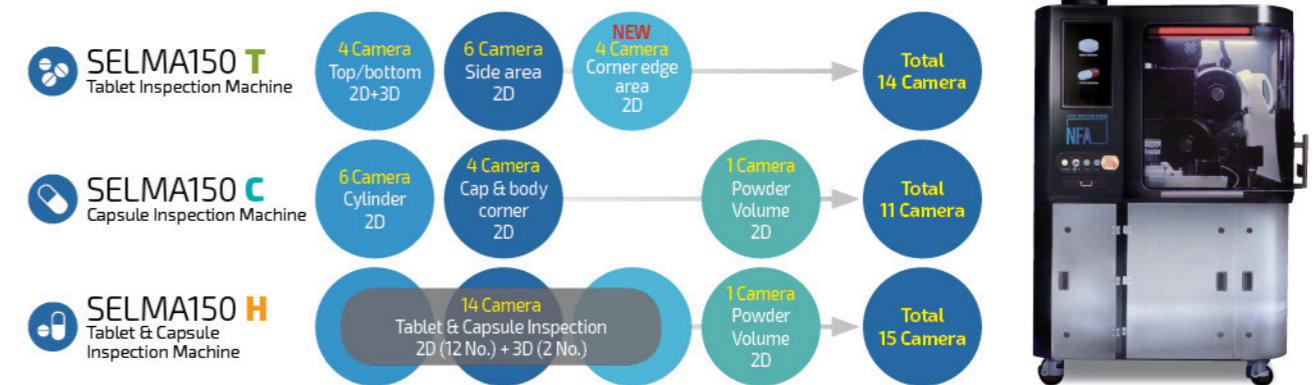
## Tablet Camera position (Total 14 camera)



## Capsule Camera position (Total 11 camera)



## Camera Composition | SELMA150



## Inspect Capacity

| Capacity   | Tablet(length) |           |           |         |         |
|------------|----------------|-----------|-----------|---------|---------|
| Size       | Round 5mm      | Round 8mm | Oval 14mm |         |         |
| Max (hour) | 500,000        | 400,000   | 190,000   |         |         |
| Capacity   | Capsule(size)  |           |           |         |         |
| Size       | No.4           | No.3      | No.2      | No.1    | No.0    |
| Max (hour) | 200,000        | 185,000   | 170,000   | 155,000 | 145,000 |

\* The maximum speed can be different depending on the inspection condition of tablet(capsule)

## Environment

|                      |                       |
|----------------------|-----------------------|
| Electric Consumption | 7kW                   |
| Compressed Air (Dry) | 5~8 bar               |
| Temperature Humidity | 10~30℃ / 30~70%       |
| Pneumatic Pressure   | ≥0.35MPa              |
| Material             | SUS 304, SUS 316, UPE |

## Inspection Range

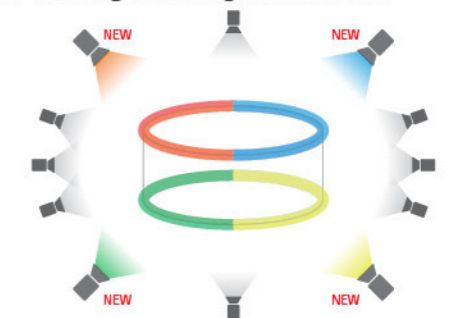
|                   | Tablet   | Capsule   |
|-------------------|--|---|
| Type              | Uncoated<br>Film-coated<br>[Option] Sugar-coated                           | Hard gelatin  |
| Size              | Length : 5 ~ 24mm<br>Width(Diameter) : 5~12mm<br>Height(Thickness) : 2~8mm | Size : 0, 1, 2, 3, 4<br>[Option] Size 00 and Size 5 |
| Camera Resolution | 40μm   |   |

\* At least 0.6mm gap between width & height should exist for tablet inspection.

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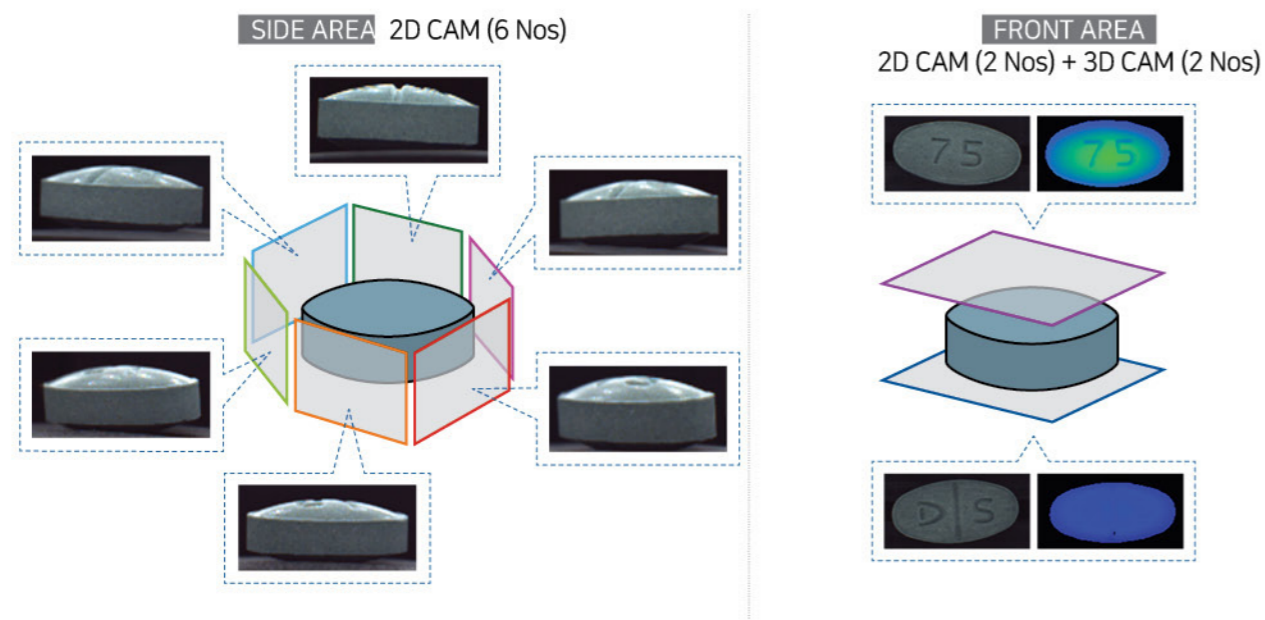
## NEW SELMA150

**Tablet Edge Area Inspection**  
NFA developed a new program for checking corner edge area of tablet.

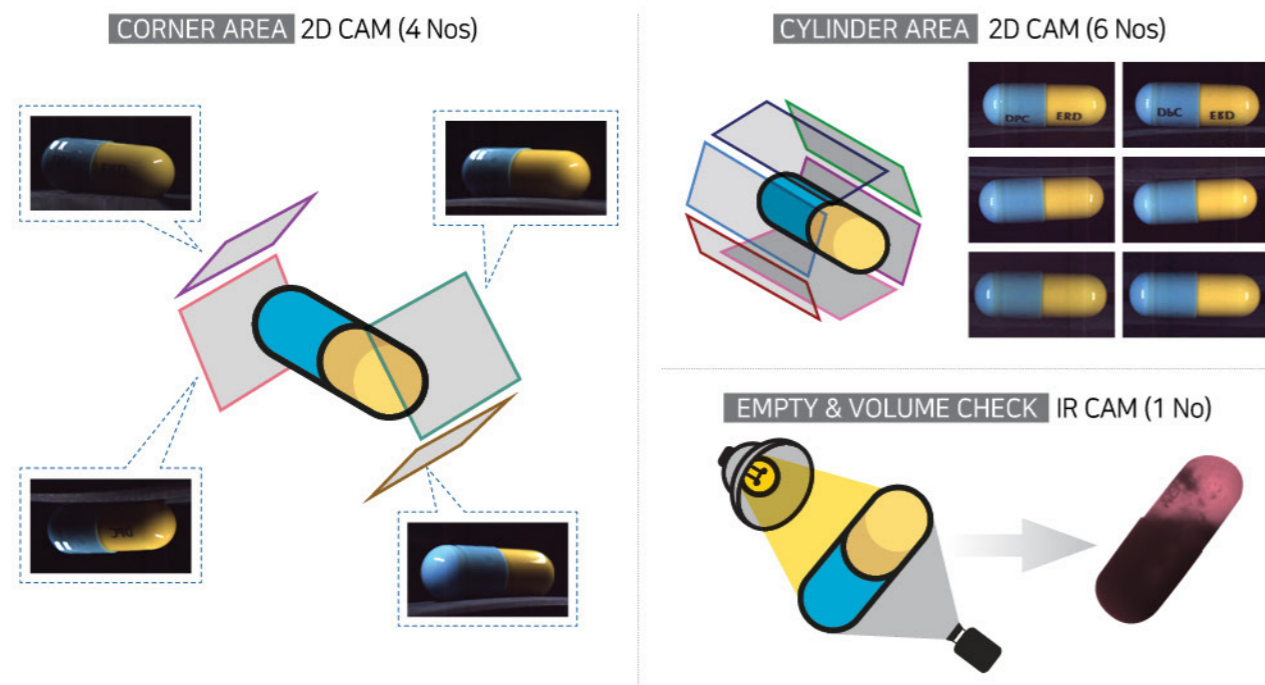


# SELMA100 (5<sup>th</sup> GENERATION)

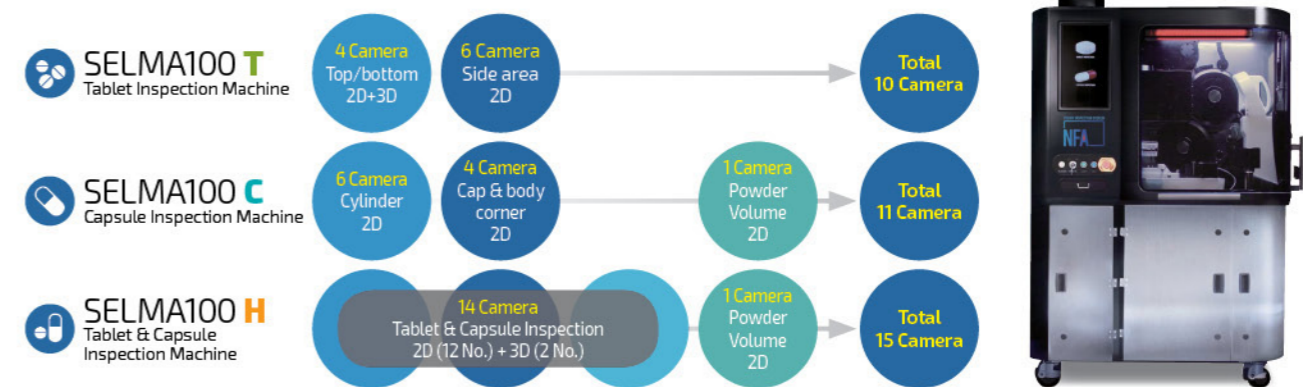
## Tablet Camera position (Total 10 camera)



## Capsule Camera position (Total 11 camera)



## Camera Composition | SELMA100



## Inspect Capacity

| Capacity   | Tablet(length) |           |          |         |         |
|------------|----------------|-----------|----------|---------|---------|
| Size       | Round 5mm      | Round 8mm | Oval14mm |         |         |
| Max (hour) | 500,000        | 400,000   | 190,000  |         |         |
| Capacity   | Capsule(size)  |           |          |         |         |
| Size       | No.4           | No.3      | No.2     | No.1    | No.0    |
| Max (hour) | 200,000        | 185,000   | 170,000  | 155,000 | 145,000 |

\* The maximum speed can be different depending on the inspection condition of tablet(capsule)

## Inspection Range

|                   | Tablet   | Capsule   |
|-------------------|--|---|
| Type              | Uncoated<br>Film-coated<br>[Option] Sugar-coated                           | Hard gelatin  |
| Size              | Length : 5 ~ 24mm<br>Width(Diameter) : 5-12mm<br>Height(Thickness) : 2-8mm | Size : 0, 1, 2, 3, 4<br>[Option] Size 00 and Size 5 |
| Camera Resolution | 40μm   |   |

\* At least 0.6mm gap between width & height should exist for tablet inspection.

※ The above specifications and capacities can be changed without notification for the reason of technical improvement.

## Environment

|                      |                          |
|----------------------|--------------------------|
| Electric Consumption | 7kW                      |
| Compressed Air (Dry) | 5~8 bar                  |
| Temperature Humidity | 10~30℃ / 30~70%          |
| Pneumatic Pressure   | ≥0.35MPa                 |
| Material             | SUS 304,<br>SUS 316, UPE |

