

VISION INSPECTION SYSTEM



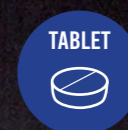
# VISION INSPECTION FOR TABLET & CAPSULE

Distributor / Agency

VISION INSPECTION SYSTEM



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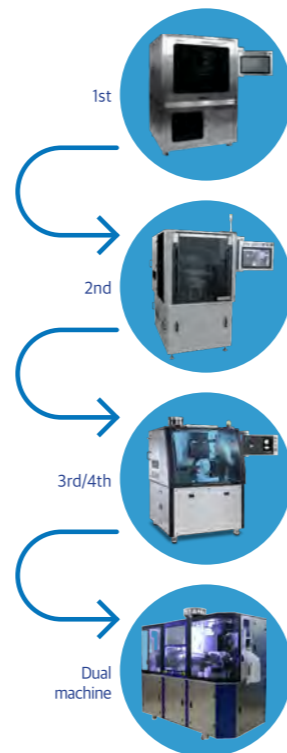


# NFA PHARMACEUTICAL VISION INSPECTION SYSTEM

## ABOUT COMPANY

**Introduce** NFA Co., Ltd. (F.A. Electronics) develops a pharmaceutical vision inspection system for tablet & capsule based on our own high-end technology & field experiences. Our self-developed DSP board / Embedded system / Image processing algorithm guarantee the fastest & most accurate vision inspection in the world. We are the No.1 manufacturer who receives credit for this inspection solution from Korean customers, also spreading throughout America, Europe, Asia, China, India and other markets. NFA is doing the best to be a leading company in pharmaceutical inspection industry.

- History**
- 2001. 07 Developed Empty capsule inspection system
  - 2003. 02 Developed Image processing board & IT DSP chip
  - 2005. 12 Developed BLU screen inspection system
  - 2006. 09 Developed FPCB external inspection system
  - 2009. 04 Developed Tablet inspection system (1st Generation)
  - 2010. 09 Developed Built No.1 manufacturing factory
  - 2011. 01 Developed Tablet inspection system (2rd Generation)
  - 2011. 02 Established F.A. Electronics Co., Ltd.
  - 2012. 07 Developed Tablet inspection system (3rd Generation)
  - 2014. 10 Developed Tablet&Capsule inspection system (4th Generation)
  - 2015. 05 Established NFA Co., Ltd.
  - 2016. 04 Developed Dual Tablet&Capsule inspection system
  - 2016. 09 Developed Tablet&Capsule inspection system & Counter (5th Generation)



## ELMA100 SERIES (4th Generation)

- ELMA100 T Vision Inspection Machine for Tablet
- ELMA100 C Vision Inspection Machine for Capsule
- ELMA100 H Vision Inspection Machine for Tablet & Capsule

### - Capacity ( hour )

Size	Tablet (length)			Capsule (size)				
	Round 5mm	Round 8mm	Oval 14mm	No.4	No.3	No.2	No.1	No.0
Max Output	Max. 350,000	Max. 250,000	Max. 160,000	Max. 150,000	Max. 140,000	Max. 130,000	Max. 120,000	Max. 110,000

※ It can be a deviation in capacity by inspection condition and tablet/capsule specification.

### - Machine Size

1300(W) x 1450(L) x 1750(H) mm



## SELMA100 SERIES (5th Generation)

- SELMA100 T Vision Inspection Machine for Tablet
- SELMA100 C Vision Inspection Machine for Capsule
- SELMA100 H Vision Inspection Machine for Tablet & Capsule

### SELMA100 FEATURE

- 130% Capacity (compare with ELMA100)
- Check the powder volume inside of capsule
- APP / Remote control service
- 2 in 1 system : One machine inspects tablet & capsule
- All in 1 Change part :  
One change part controls all type tablet & capsule
- Two Distributors :  
Two(2) line discharging makes the easy collection of good tablet/capsule after inspection

#### - Capacity ( hour )

Size	Tablet (length)			Capsule (size)				
	Round 5mm	Round 8mm	Oval 14mm	No.4	No.3	No.2	No.1	No.0
Max Output	Max. 400,000	Max. 320,000	Max. 170,000	Max. 180,000	Max. 165,000	Max. 150,000	Max. 135,000	Max. 120,000

※ It can be a deviation in capacity by inspection condition and tablet/capsule specification.



## SELMA200 SERIES (5th Generation) (SELMA100 + Additional functions)

- 150% Capacity (Compare with ELMA100 than SELMA100)
- Able to inspect more size of tablet/capsule
- Two Distributors :  
Two(2) line discharging makes the easy collection of good tablet/capsule after inspection
- Feeding checker : Tablet/Capsule level sensor in hopper
- Faster inspection speed by up-graded PCB
- More accurate inspection setup
- Counter : Direct tablet/capsule counting after inspection (Option)
- Double defect confirmation :  
1 more counting sensor in bad tablet/capsule bin (Option)

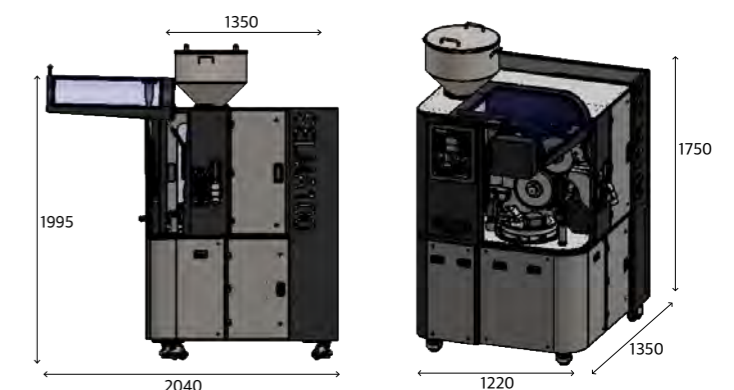
#### - Capacity ( hour )

Size	Tablet (length)			Capsule (size)				
	Round 5mm	Round 8mm	Oblong 14mm	No.4	No.3	No.2	No.1	No.0
Max Output	Max. 450,000	Max. 380,000	Max. 180,000	Max. 200,000	Max. 185,000	Max. 170,000	Max. 155,000	Max. 140,000

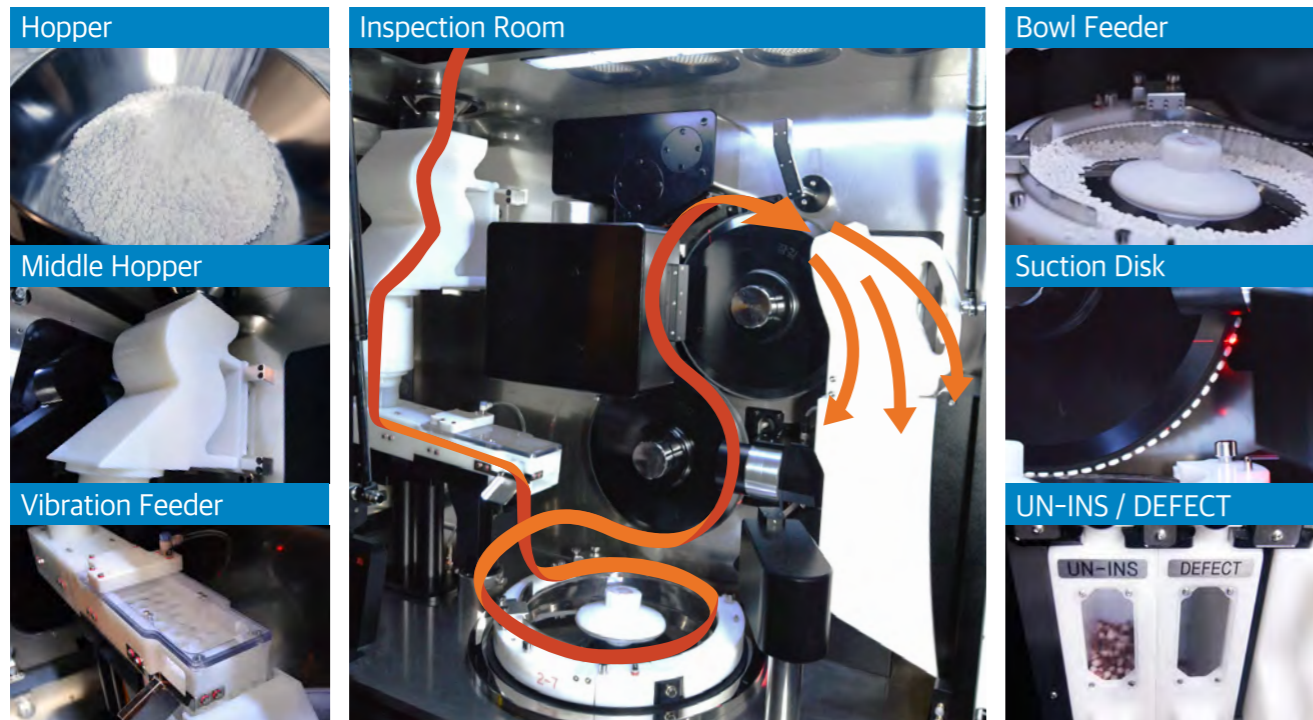
※ It can be a deviation in capacity by inspection condition and tablet/capsule specification.

### SELMA100 & SELMA200 SIZE

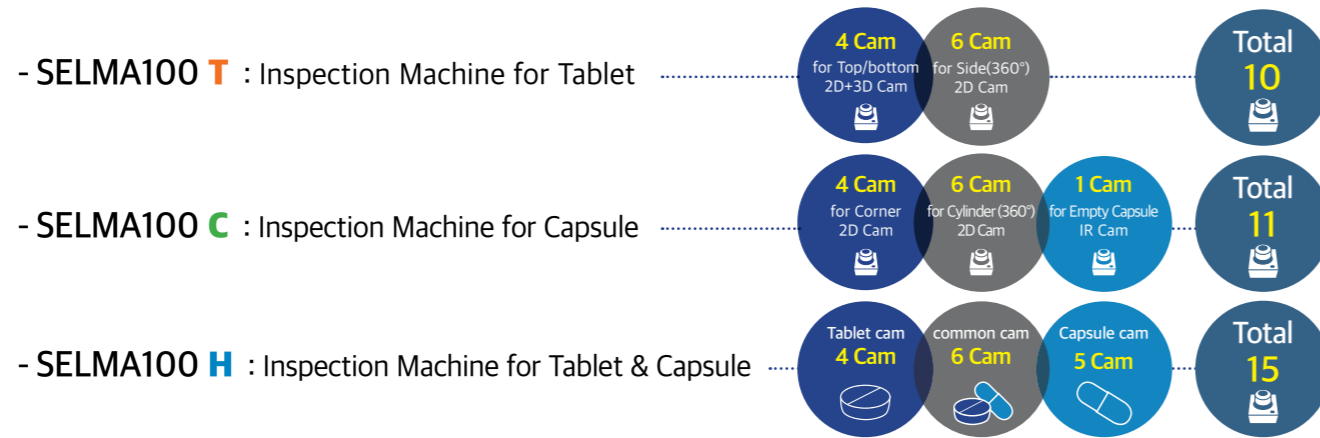
- 1220(W) x 1350(L) x 1750(H) mm



### Inspection Moving Line



### Camera Composition



### Change Part

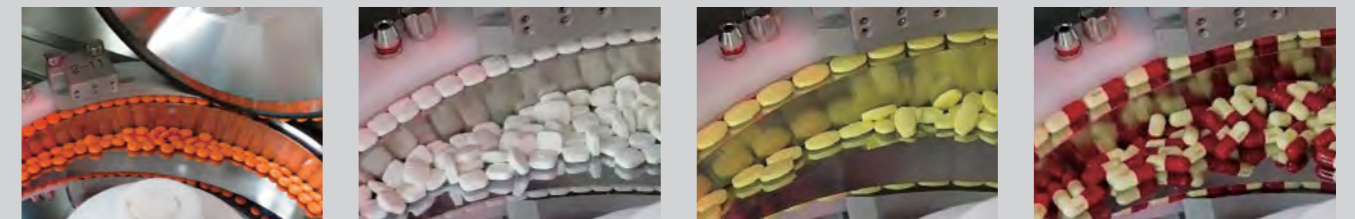
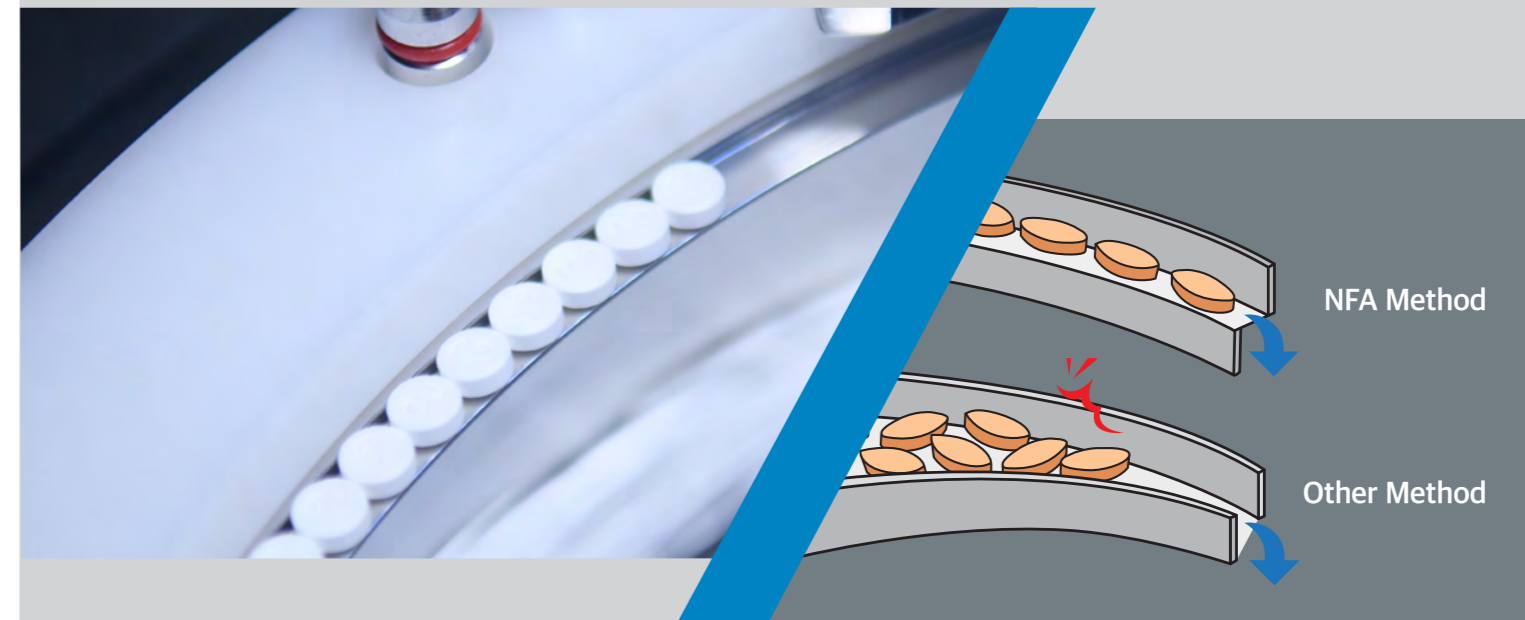
- All in 1 Change part :  
One change part can inspect  
all type of tablet & capsule.

\* Change part is decided by  
Diameter(width) of tablet/capsule. (not shape or type)

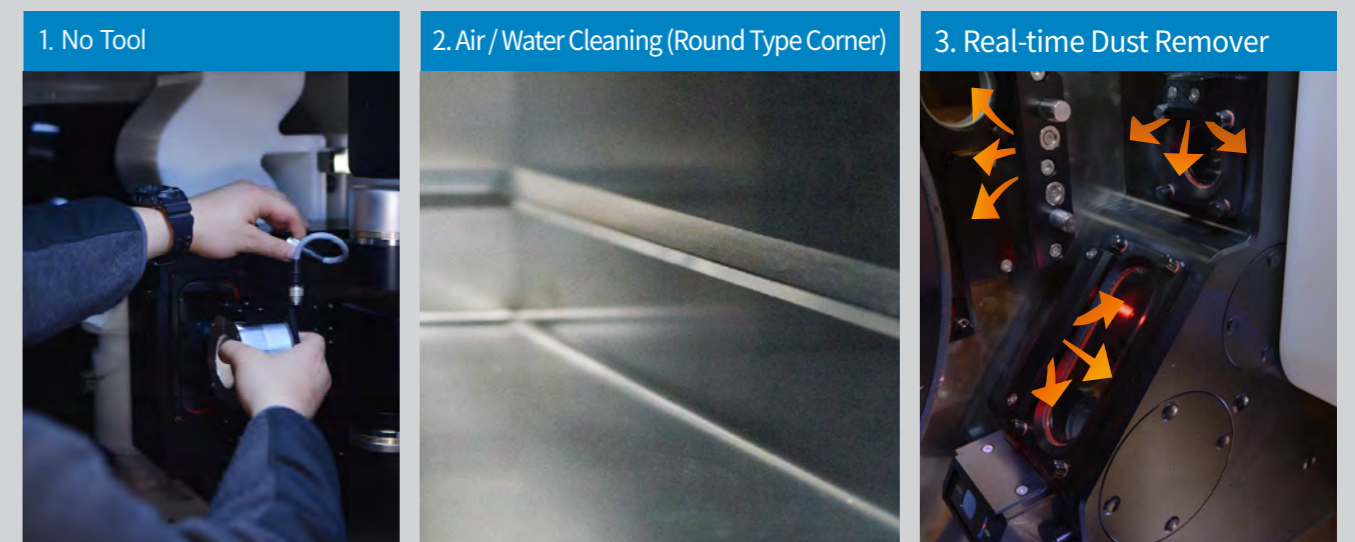


### No Jam - Open sorting

Open structure prevents the jam during sorting

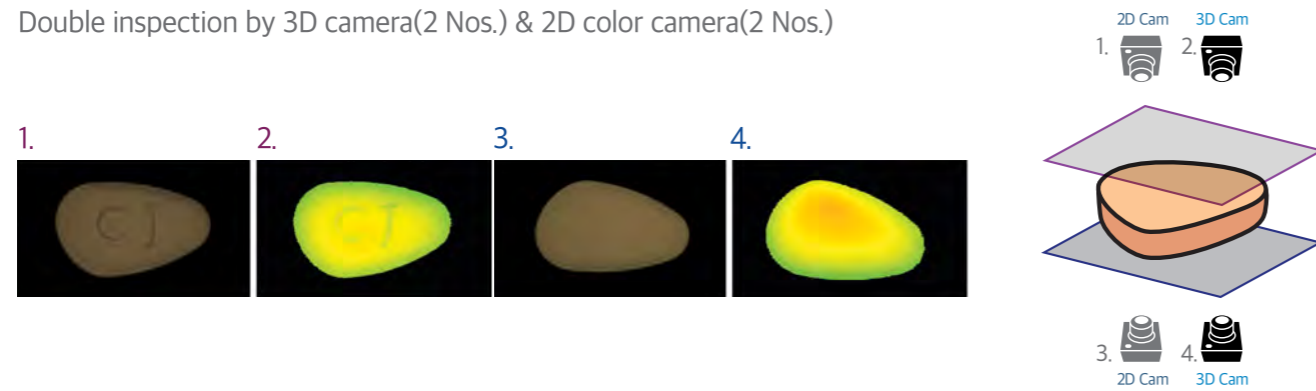


### Fast Cleaning - Disassemble : 3 mins / Reassemble : 5 mins



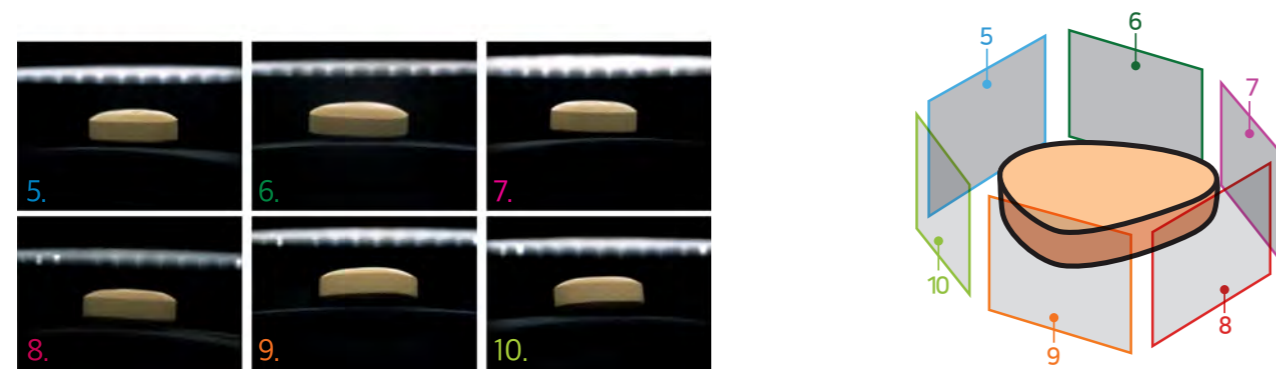
Top / Bottom

Double inspection by 3D camera(2 Nos.) & 2D color camera(2 Nos.)



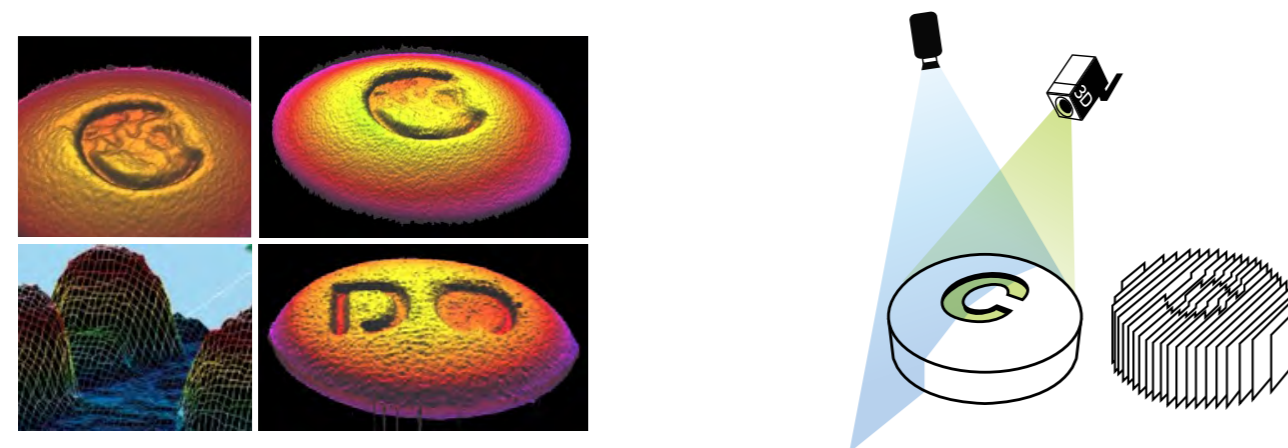
Side

No blind spot inspection by 2D color camera(6 Nos.)



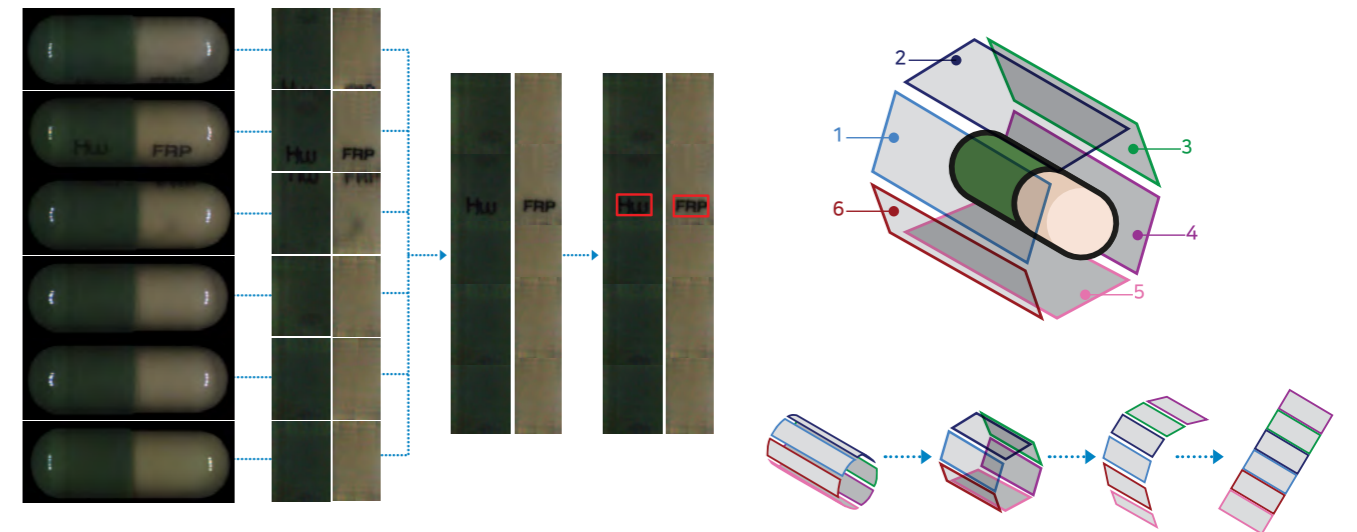
3D camera Inspection

2D image is hard to check the depth-defect such as engraving error, poor coating on surface.  
3D image can accurately check the depth-defect by laser scanning



Cylinder

Make one combined image from 2D color camera(6 Nos.) by special algorithm



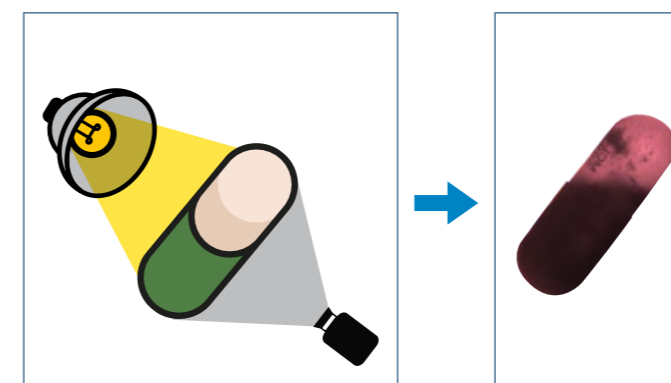
Corner

No blind spot inspection by 2D color camera(4 Nos.)



Powder Volume

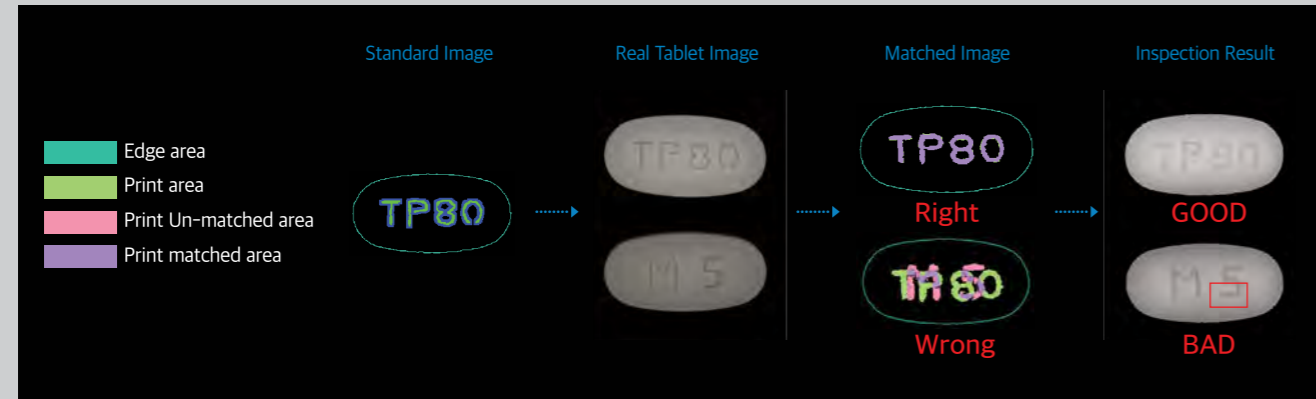
- IR camera(1 No.) scans through inside of capsule, calculates the powder volume percent(%)  
(Able to inspect the black color capsule)



Inspection Algorithm : Standard image setup & Image matching inspection

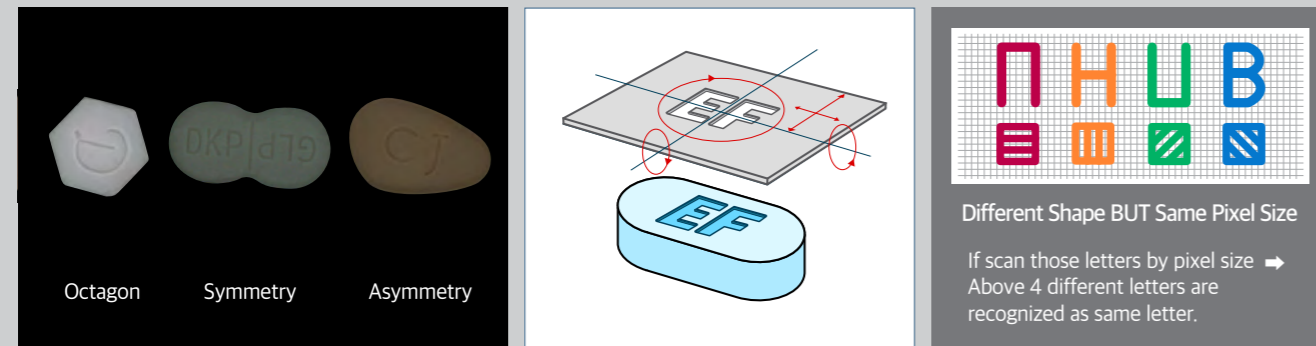
Step 1 : Set a standard image with tablet/capsule features such as shape, print, engraving, color, etc

Step 2 : Match the standard image with real tablet/capsule image to pick out defects



Engraving Shape Recognition

Recognize the engraving as "Shape" not pixel size.



Inspection Grade Setup

Able to adjust the inspect standard(defect size/location/brightness etc) by defect type(spot/crack/dicolor etc)

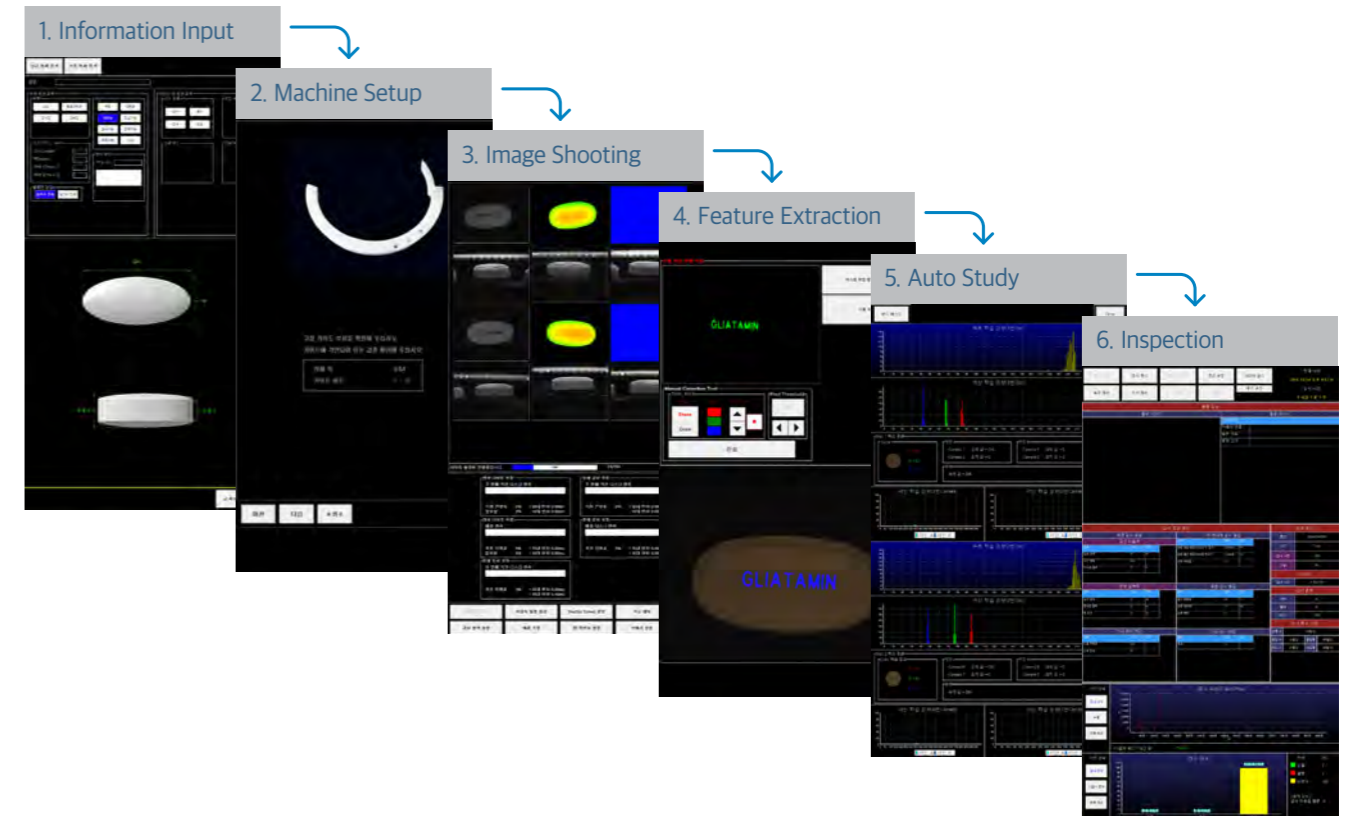


Easy Setup

- New tablet / capsule setup : 30 mins / 6 steps

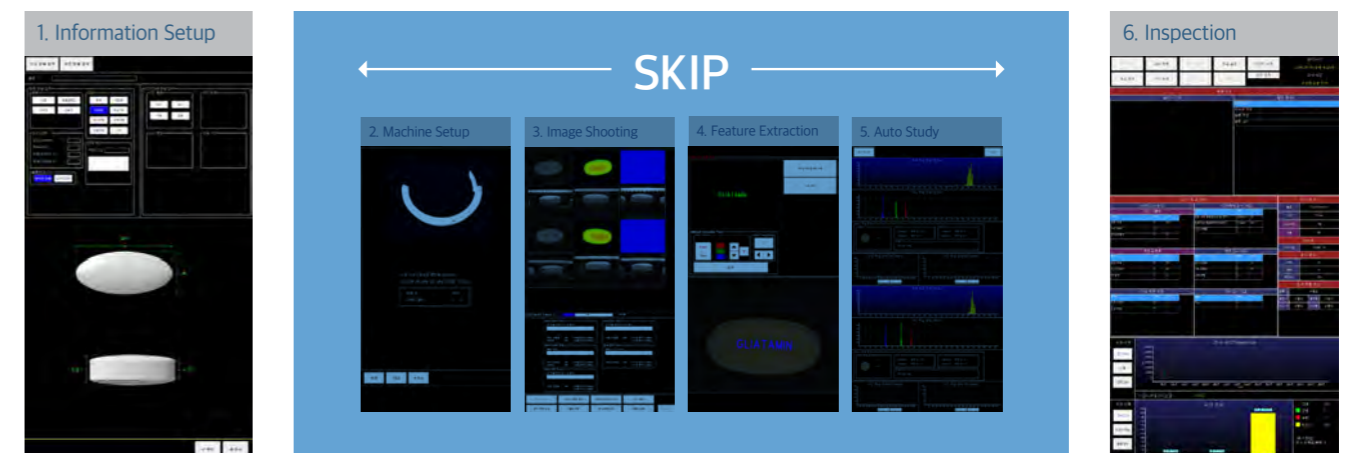
- Registered tablet / capsule setup : 5 mins / 2 steps

New Tablet / Capsule Setup : 30 mins

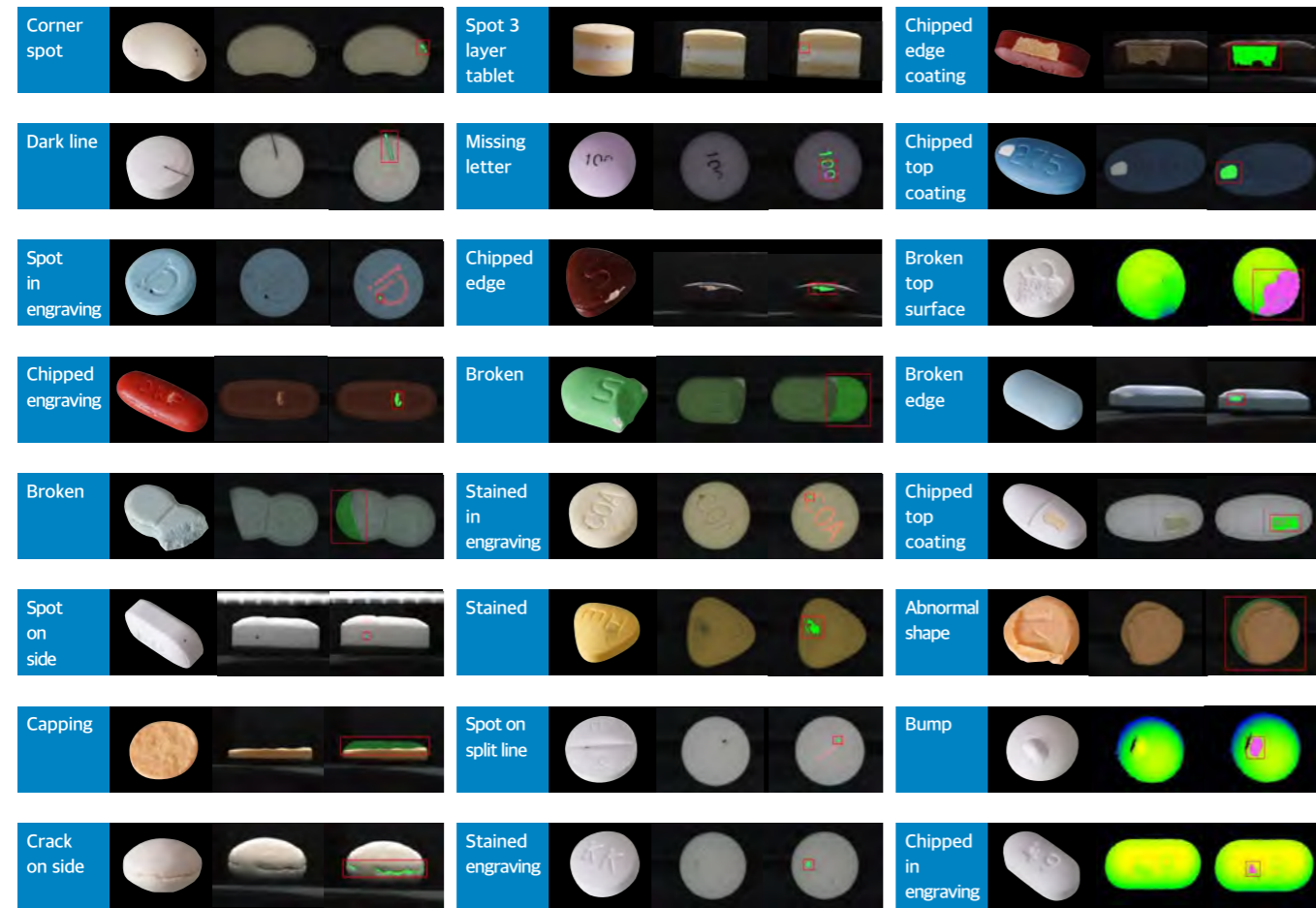


Registered Tablet / Capsule Setup : 5 mins

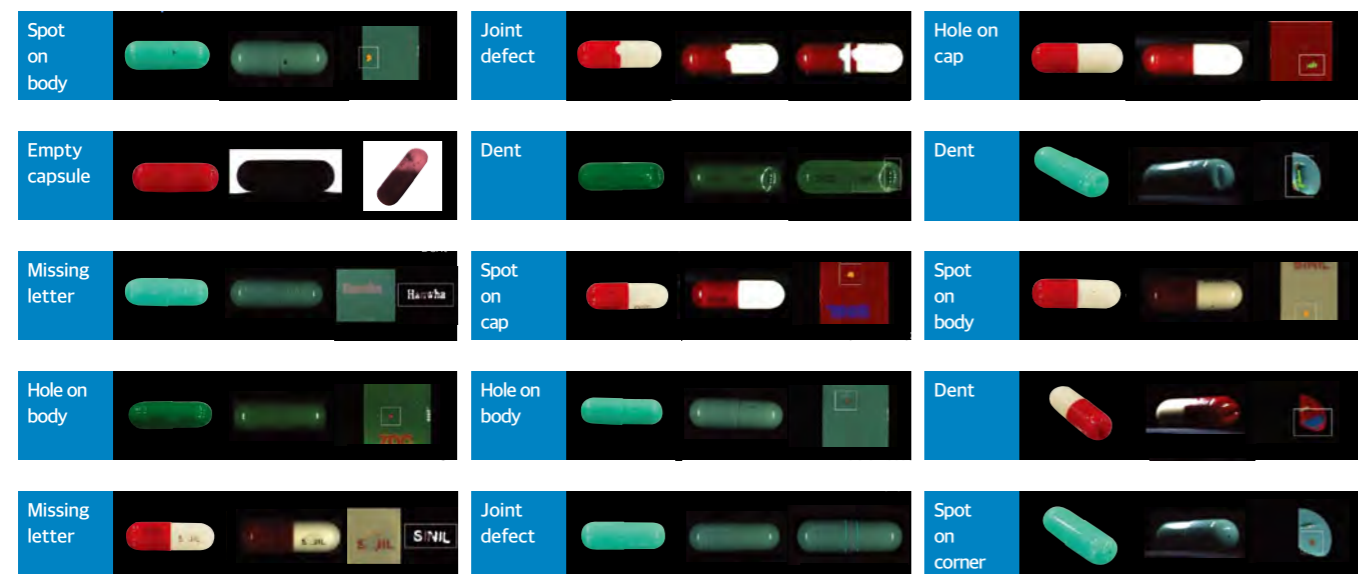
STEP. 1 → STEP. 6



Tablet



Capsule



Specification

Inspection function	Applicable type	Tablet : Uncoated, Film-coated, Sugar-coated, etc Capsule : Hard capsule, etc	
	Applicable size	ELMA100	Length : 5~21mm Width(Dia.) : 5-12mm Height : 2~8mm
		SELMA100	
		SELMA200	Length : 4~23mm Width(Dia.) : 4-16mm Height : 2~8mm
	Inspection item	Tablet : Spot, Scratch, Crack, Chip, Foreign particle, Miss print, Poor mark, Different color, Dirt, Depth error, Bad coating, etc Capsule : Spot on body, Joint defect, Hole on cap, Empty capsule, Dent, Missing letter, Spot on corner, etc	
Inspection accuracy	Able to inspect 40µm size defect		

Machinery Part	Camera	T-type	2D : 8 Nos. & 3D : 2 Nos.
		C-type	2D : 11 Nos.
		H-type	2D : 13 Nos. & 3D : 2 Nos.
Environment	Electric power	220V/400V ± 10%, 50/60Hz	
	Compressed air(dry)	5~8bar	
	Material	SUS304, SUS316, UPE	
	Pneumatic pressure	≥0.35MPa	
Environment	Temperature	10~30℃	
	Humidity	30~70%	

NFA GLOBAL PARTNERSHIP



● Korea, China, India, Russia, Singapore, Thailand, Malaysia, Myanmar, Bangladesh, Srilanka, Israel

● USA, UK, Germany, Iran, Australia, Pakistan, Mexico, Indonesia, Vietnam, Chile, Congo