SELMA Series

Auto Vision Inspection for Tablet & Capsule

VISION INSPECTION SYSTEM
NFA

- SELMA **T** Vision Inspection Machine for Tablet
- SELMA **C** Vision Inspection Machine for Capsule
- SELMA **H** Vision Inspection Machine for T&C

Contents

1 Introduce

2 Product

3 SELMA 150 & 200

4 Technologies

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6 Q&A / Conclusion

1 Introduce

1-1 Company History

1980~

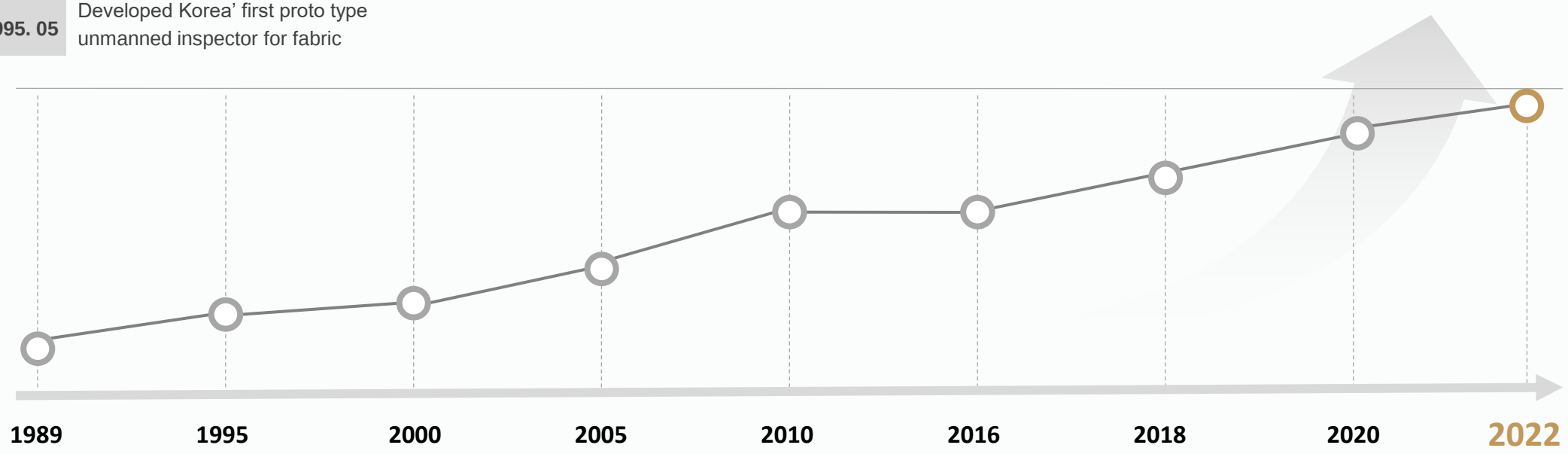
1989. 01	Establishment of F.A.. Electronics
1990. 02	Developed truck mixer plant system
1992. 07	Developed LVDT control meter
1995. 05	Developed Korea' first proto type unmanned inspector for fabric

2000~

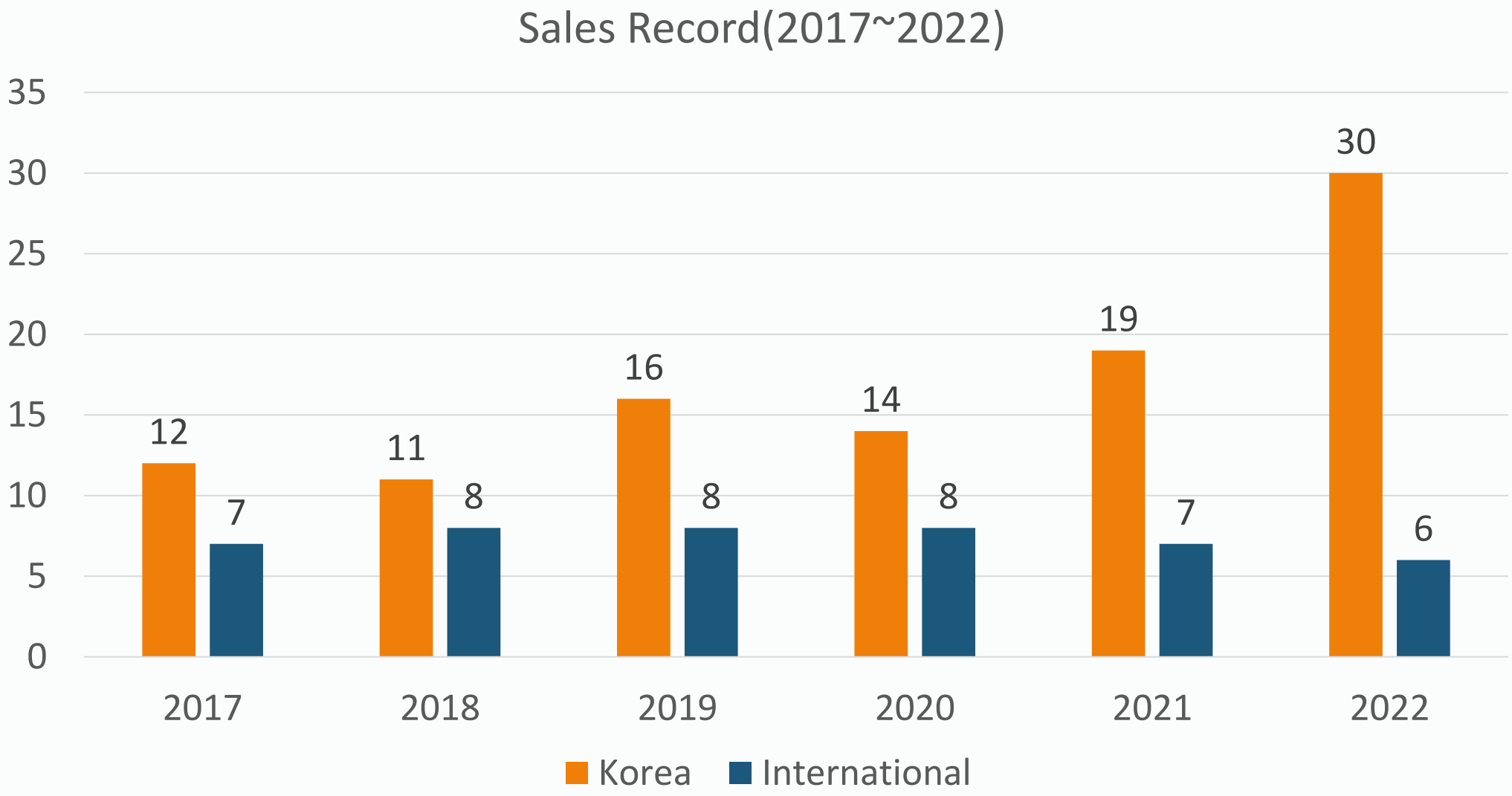
2000. 07	1st Generation / Capsule inspection machine
2003. 02	Image processing board & IT DSP chip
2005. 12	BLU screen inspection system
2006. 09	FPCB external inspection system
2007. 04	2nd Generation / T inspection machine
2009. 07	3rd Generation / T inspection system

2010~

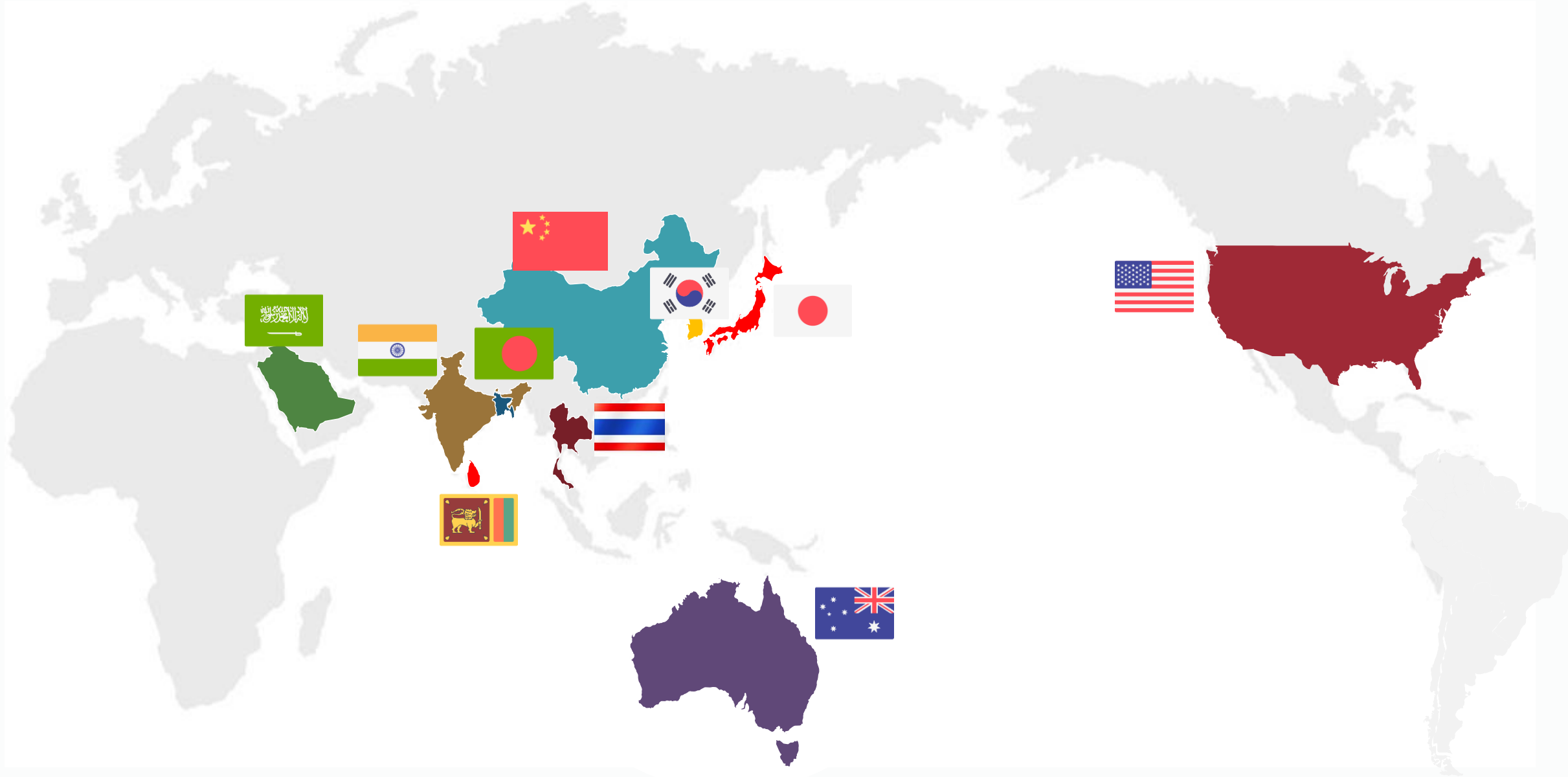
2010. 09	Established No. 1 manufacturing factory
2012. 01	4th Generation / T & Capsule inspection system
2016. 04	5th Generation / T & Capsule inspection system
2017. 06	Established Demo & Display center
2018. 01	6th Generation / T & Capsule inspection system
2019. 02	7th Generation / T & Capsule inspection system
2020.02.	LIMA200 / UV Laser Print & Inspection system
2021.06.	DELMA / Double Lane T & Capsule inspection system



1-1 Sales Record / 2017~2022



1-2 Sales Status



1-3

International Sales List

No.	Country	Customer	Date	Quantity
1	Sri Lanka	S	May.2016	1
2	Bangladesh	B	Aug.2017	6
3	India	S	Oct.2017	1
4	China	H	Dec.2017	1
5	India	A	May.2018	2
6	Japan	M	May.2018	1
7	Australia	N	July.2018	3
8	USA	L	Aug.2018	1
9	#	#	Dec.2018	1
10	India	S	Apr.2019	1
11	Japan	S	Aug.2019	4
12	India	A	Oct.2019	1
13	Saudi Arabia	J	Jan.2020	1
14	Japan	M	Feb.2020	1
15	China	H	Mar.2020	1
16	Thailand	G	June.2020	1
17	Japan	Q	Aug.2020	2
18	#	#	Nov.2020	1
19	USA	P	Dec.2020	1
20	Thailand	G	Feb.2021	5
21	Bangladesh	S	May.2021	1
22	#	#	Jun.2021	1
23	Bangladesh	P	Jul.2022	1
24	#	#	Aug.2022	1
25	#	#	Oct. 2022	2
26	#	#	Dec. 2022	2
			International	**44**
	KOREA		**Korea**	**162**
			Total	**208**

1-4 Innovation Company

제 190101 - 00932 호

기술혁신형 중소기업(Inno-Biz) 확인서

업체명 : 엔에프에이
대표자 : 임영빈
주소 : 서울 구로구 디지털로31길 20 (구로동) 에이스테크노타워5차 401,402호
등급 : A
유효기간 : 2019. 10. 21 ~ 2022. 10. 20

위 업체는 기술혁신형 중소기업 육성사업에 의해 선정된 기술혁신형 중소기업(Inno-Biz)임을 확인합니다.

2019년 10월 21일

중소벤처기업부장관 중소벤처기업부장관인

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office

November 02, 2020

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THIS OFFICE OF:

U.S. PATENT: *10,782,250*
ISSUE DATE: *September 22, 2020*

By Authority of the
Under Secretary of Commerce for Intellectual Property
and Director of the United States Patent and Trademark Office

SYLVIA HOLLEY
Certifying Officer

TÜV AUSTRIA CERT GMBH
Certification Body

TÜV AUSTRIA

CERTIFICATE OF CONFORMITY

Certificate - No.: TA 385 17 2629

Product:	Auto Tablet / Capsule Inspection Machine	Applicant:	NFA Co., Ltd. #402, Ace Techno Tower 5cha, 20, Digital-ro 31-gil, Guro-gu, Seoul, South, Korea, 08380
		Manufacturer:	Same as the applicant
Type / Models / Trademark:	Basic model: SELMA100-H Alternate model: SELMA100-C, SELMA100-T		
Description / Technical Specification:	380V, 3PH, 12A, 50/60Hz		
Standard(s) / Product - Certification Basis:	EN 61000-6-2:2005 + AC:2005, EN 55011:2009 + A1:2010		
Test Report:	CTS-E201702-002		
Comments:			

According to the above stated test report(s) the specified product complies with the applicable requirements of the mentioned standard(s). The applicant may use the test report and this Certificate of Conformity in connection with his declaration of conformity referring the respective EU Directive(s) and Annex.

This Certificate of Conformity has been granted to the applicant based on the results of testing performed by the applicant/manufacturer or an approved laboratory and the consequent review of the test report by TÜV AUSTRIA CERT GMBH. Therefore, it does not imply any assessment of the instruction manual, product or the production process of this product by TÜV AUSTRIA. Revisions to the referenced certification basis or any change of the design, materials, components or processing may require the repetition of all or some of the qualification tests in order for the test report and therefore this associated certificate to remain valid. Furthermore the General Conditions for a Certificate of Conformity on a national or international Standard concerning a specified product are valid.

CE

2017-03-16
Date of issue

Ivan Huang , Certification representative

CE Mark may only be affixed to this product after fulfillment of all applicable EU directives for this product and the preparation of the necessary technical documentation aswell as the conformity declaration by the manufacturer.

The validity of this certificate (Max. 5 years from the date of issue) can be checked on the TÜV AUSTRIA's Homepage.
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e-mail: ocbash@tuv.at
CFM-TAC-CoCTASH-025, Rev.00

ZERTIFIKAT | CERTIFICATE | CERTIFICAT | CERTIFICADO | СЕРТИФИКАТ | 证书 | 認証

2 Product

2-1 Product

SELMA Series

Company	NFA Co., Ltd.
Product	- SELMA-T : Vision Inspection Machine for Tablet - SELMA-C : Vision Inspection Machine for Capsule - SELMA-H : Vision Inspection Machine for T&C

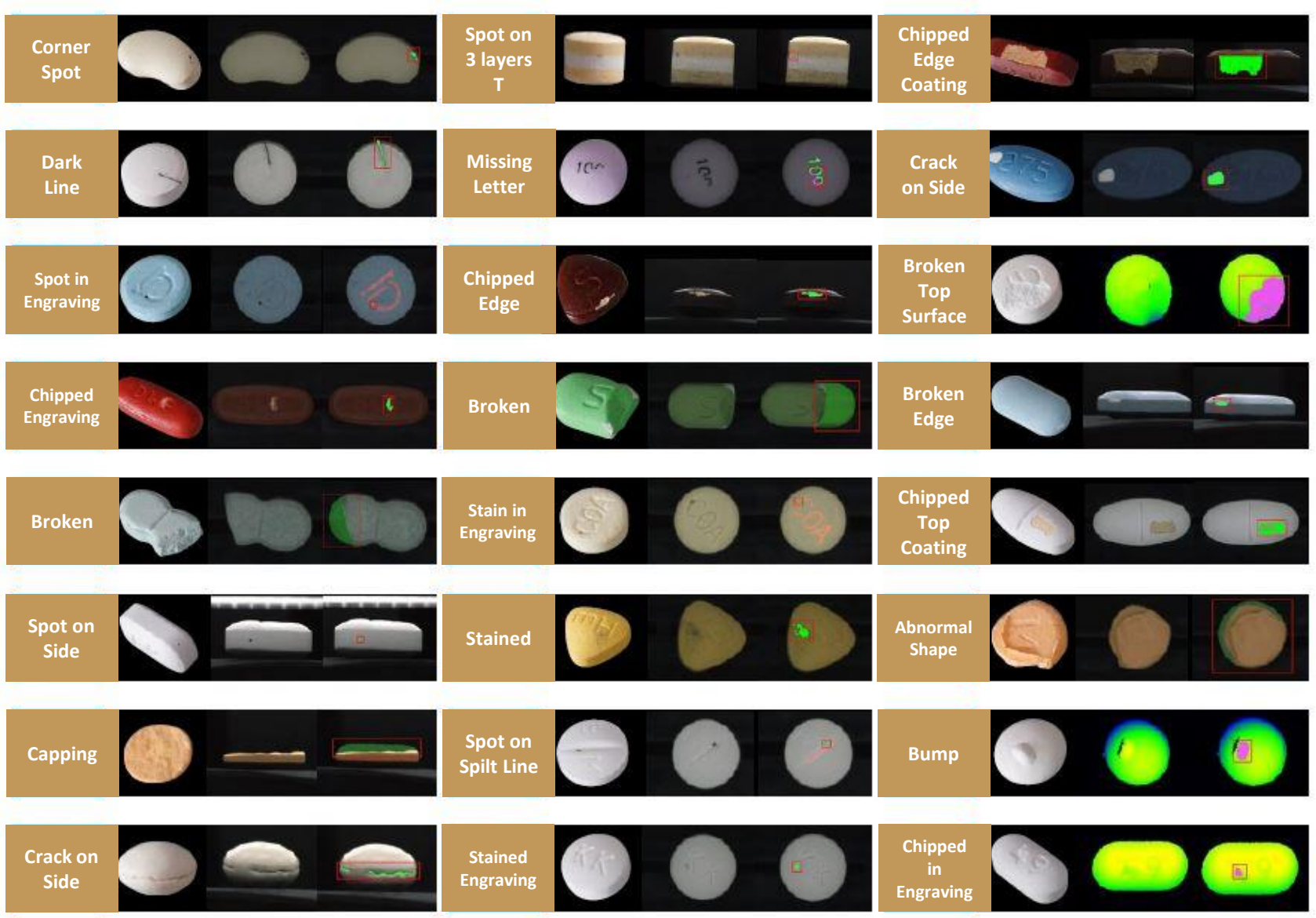
Automatically inspect the external defects of tablets & capsules.

Ex) Spot, Stain, Crack, Poor Mark, Miss Print, Discolor, etc.

1,220(W)x1,350(L)x1,750(H)mm

2-2 Defect Types / Tablet

Corner Spot	Spot on 3 layers T	Chipped Edge Coating
Dark Line	Missing Letter	Crack on Side
Spot in Engraving	Chipped Edge	Broken Top Surface
Chipped Engraving	Broken	Broken Edge
Broken	Stain in Engraving	Chipped Top Coating
Spot on Side	Stained	Abnormal Shape
Capping	Spot on Spilt Line	Bump
Crack on Side	Stained Engraving	Chipped in Engraving

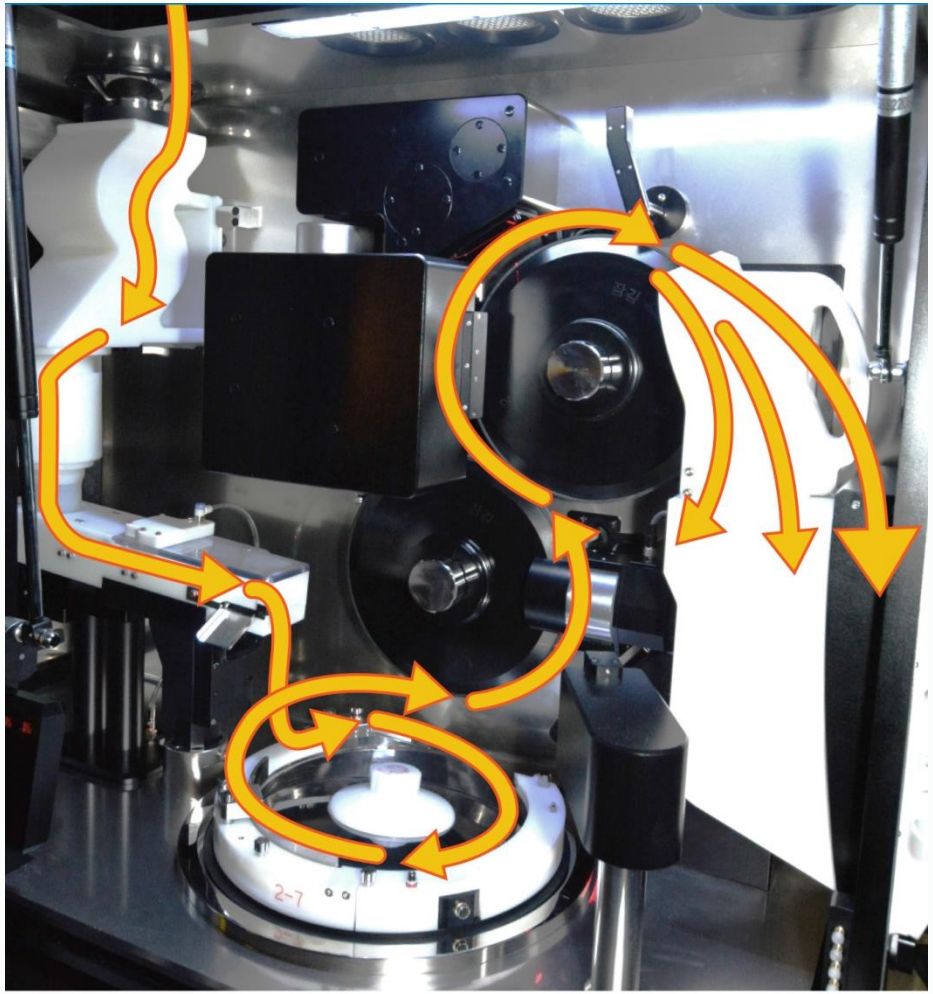


2-2 Defect Types / Capsule

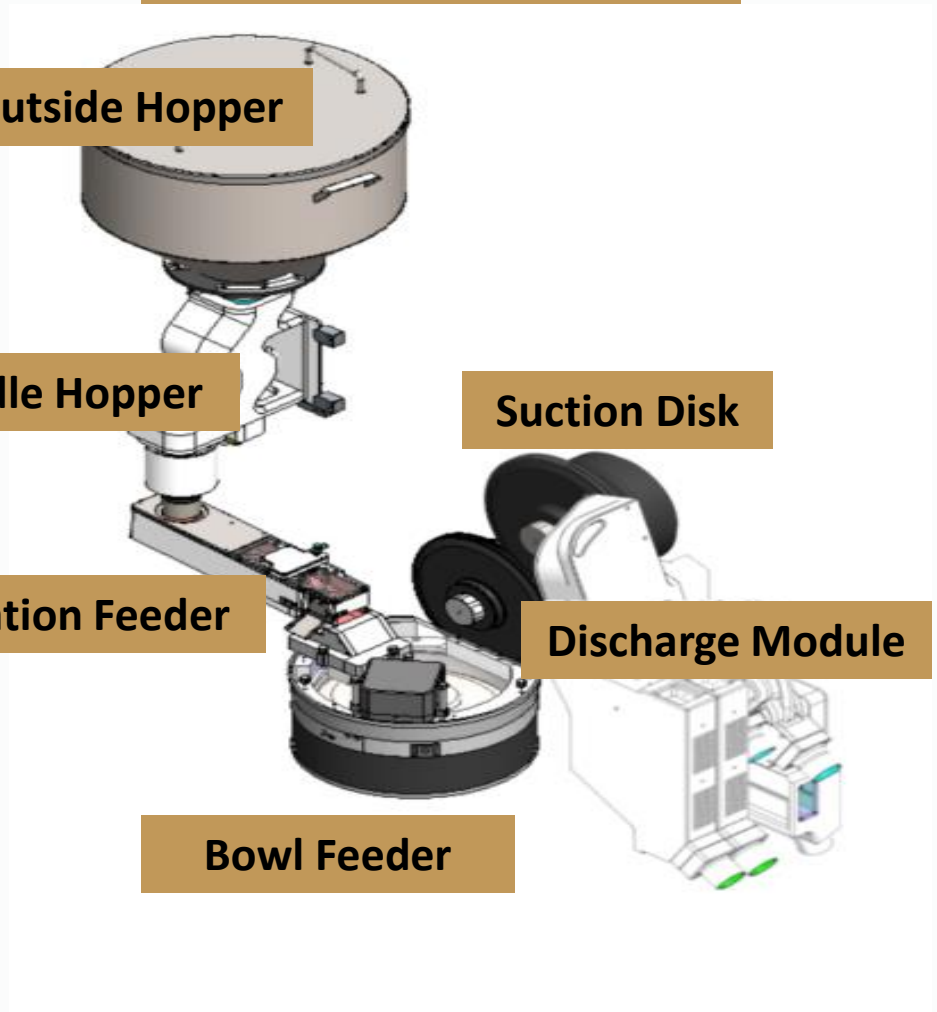
Spot on Body		Joint Defect		Hole on Cap	
Empty Capsule		Dent		Dent	
Missing Letter		Spot on Cap		Stain on Body	
Hole on Cap		Hole on Body		Dent	
Missing Letter		Joint Defect		Stain on Corner	

2-3 Inspection Room

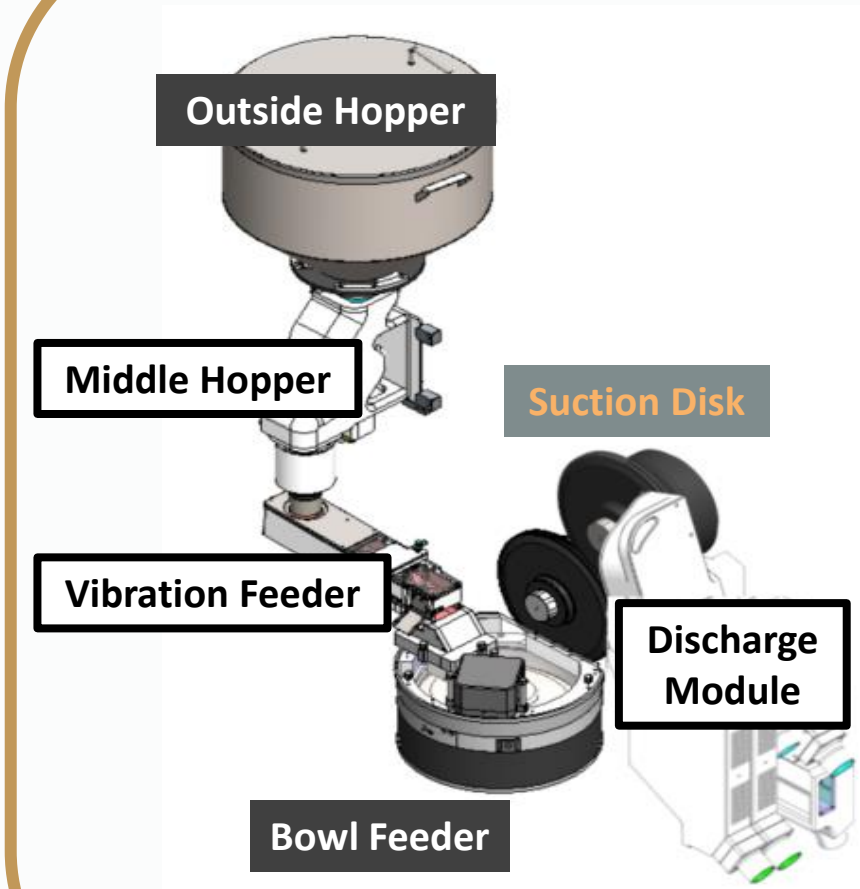
Inspection Room



Inspection Room (3D)



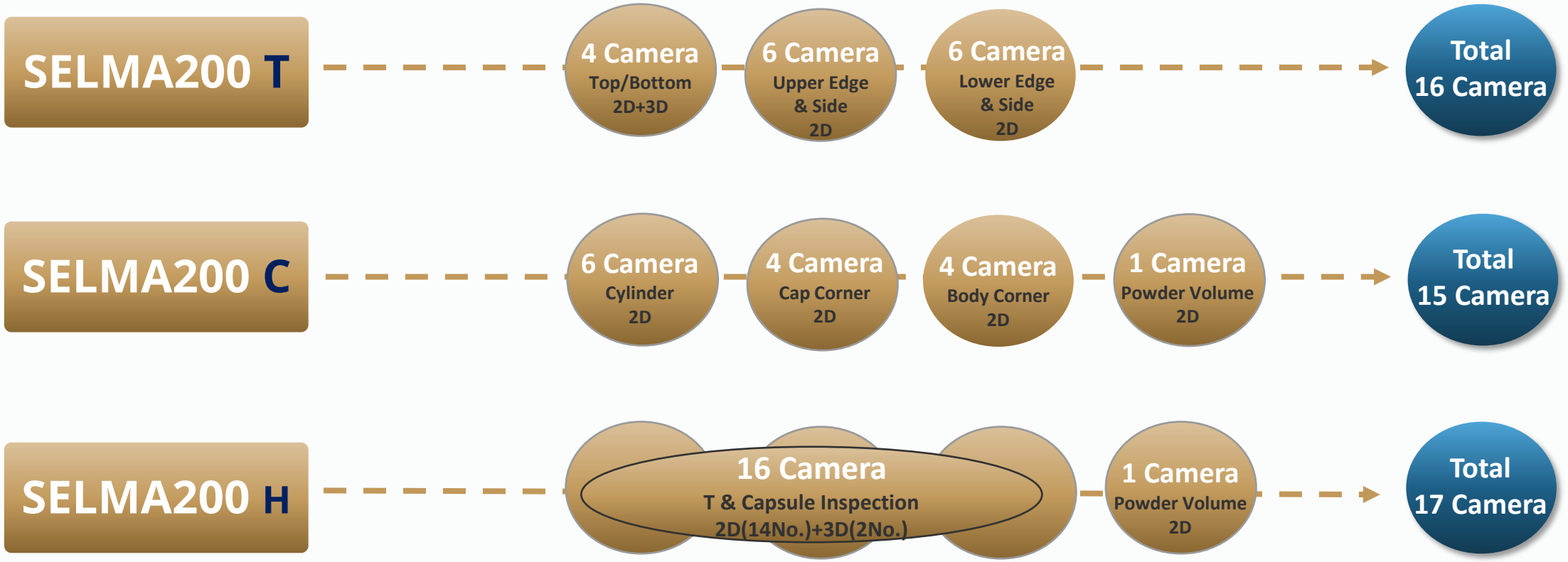
2-4 Material / Contact Parts



abc	→	SUS 316
abc	→	HDPE
abc	→	Silicon

3 SELMA200

3-1 SELMA200 / Cameras

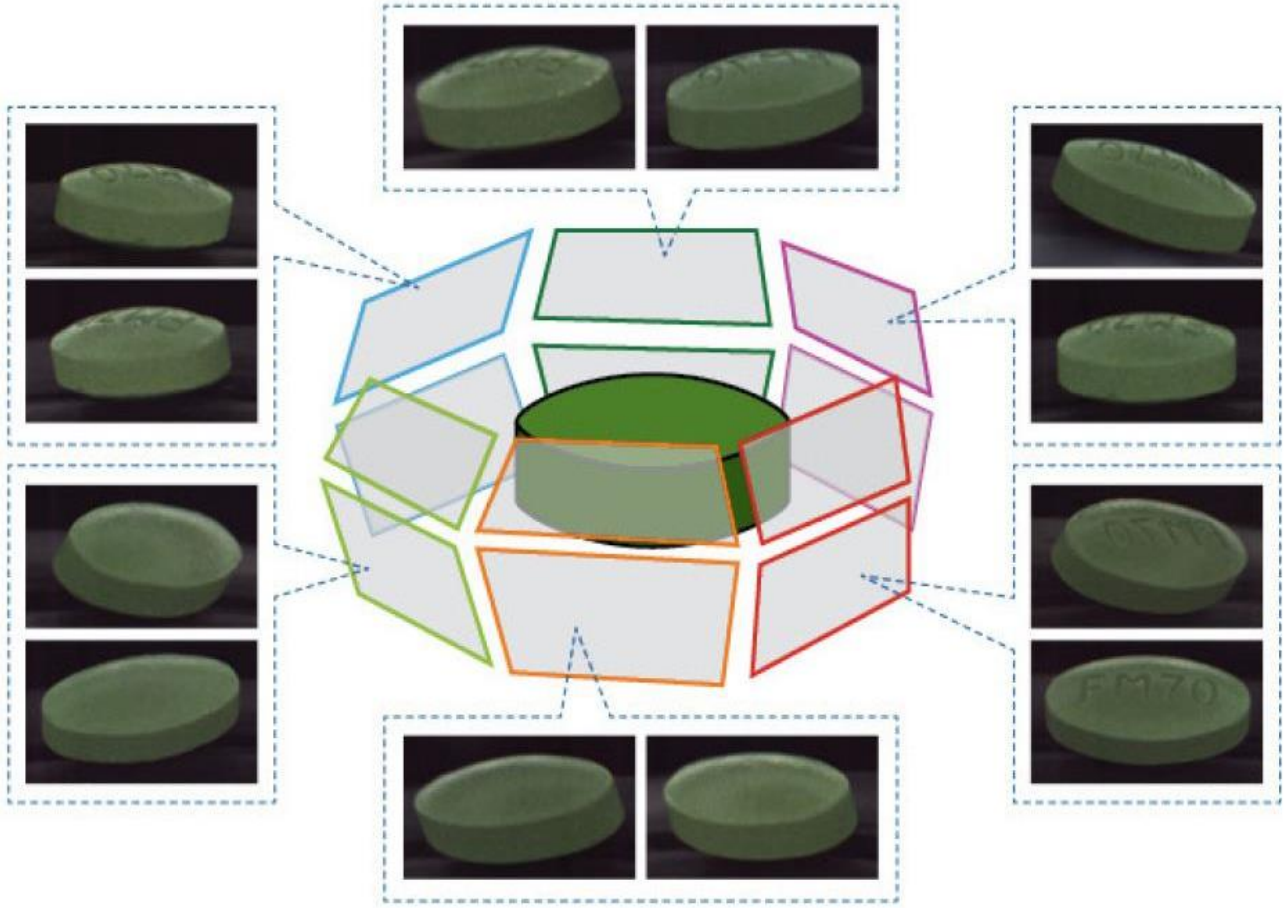


Resolution : 25㎛

3-2 SELMA200 / Cameras for Tablet

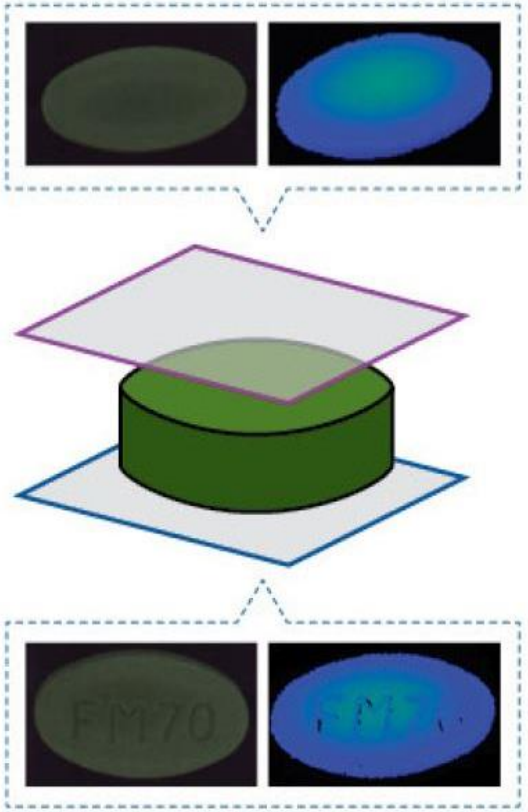
Side Area

2D Camera (12No.)



Front Area

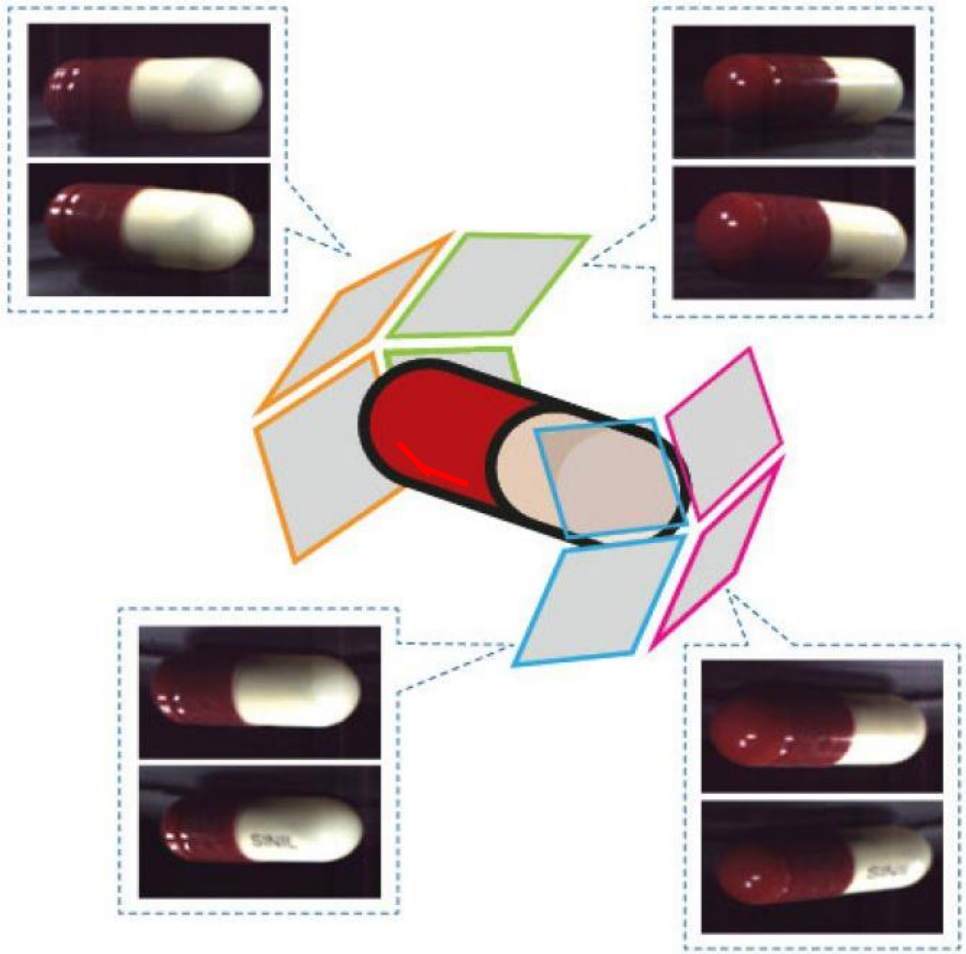
2D Camera (2No.) + 3D(2No.)



3-2 SELMA200 / Cameras for Capsule

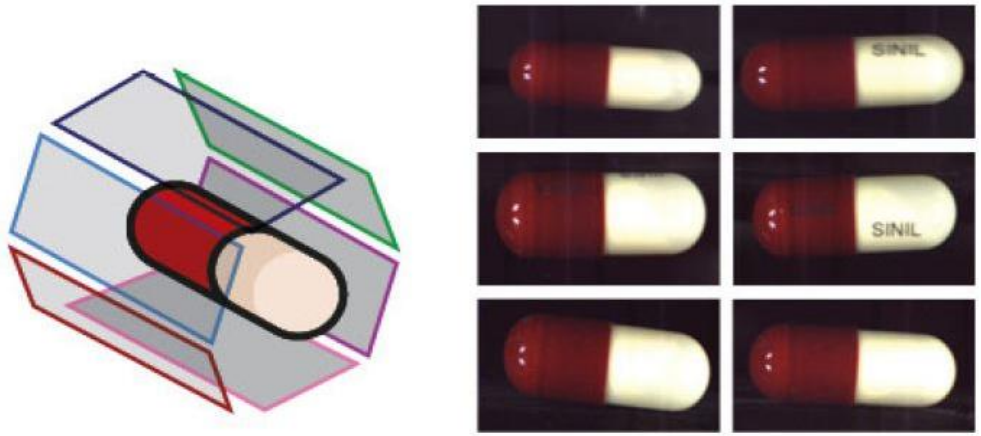
Side Area

2D Camera (8No.)

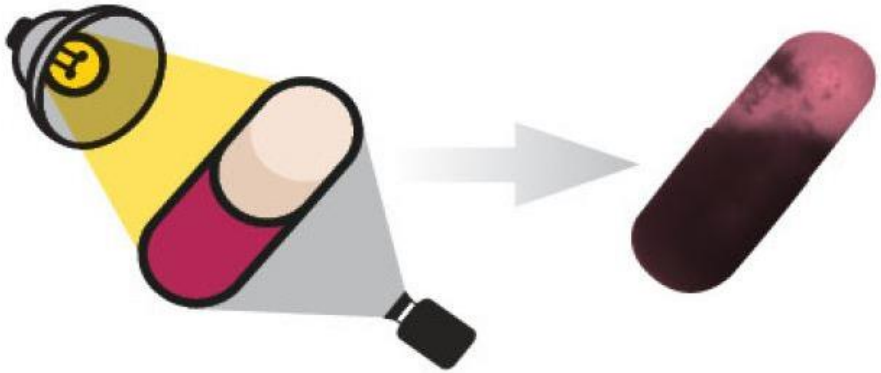


Cylinder

2D Camera (6No.)



Empty & Volume Check | **IR Camera (1No.)**



3-3 Inspection Range & Capacity

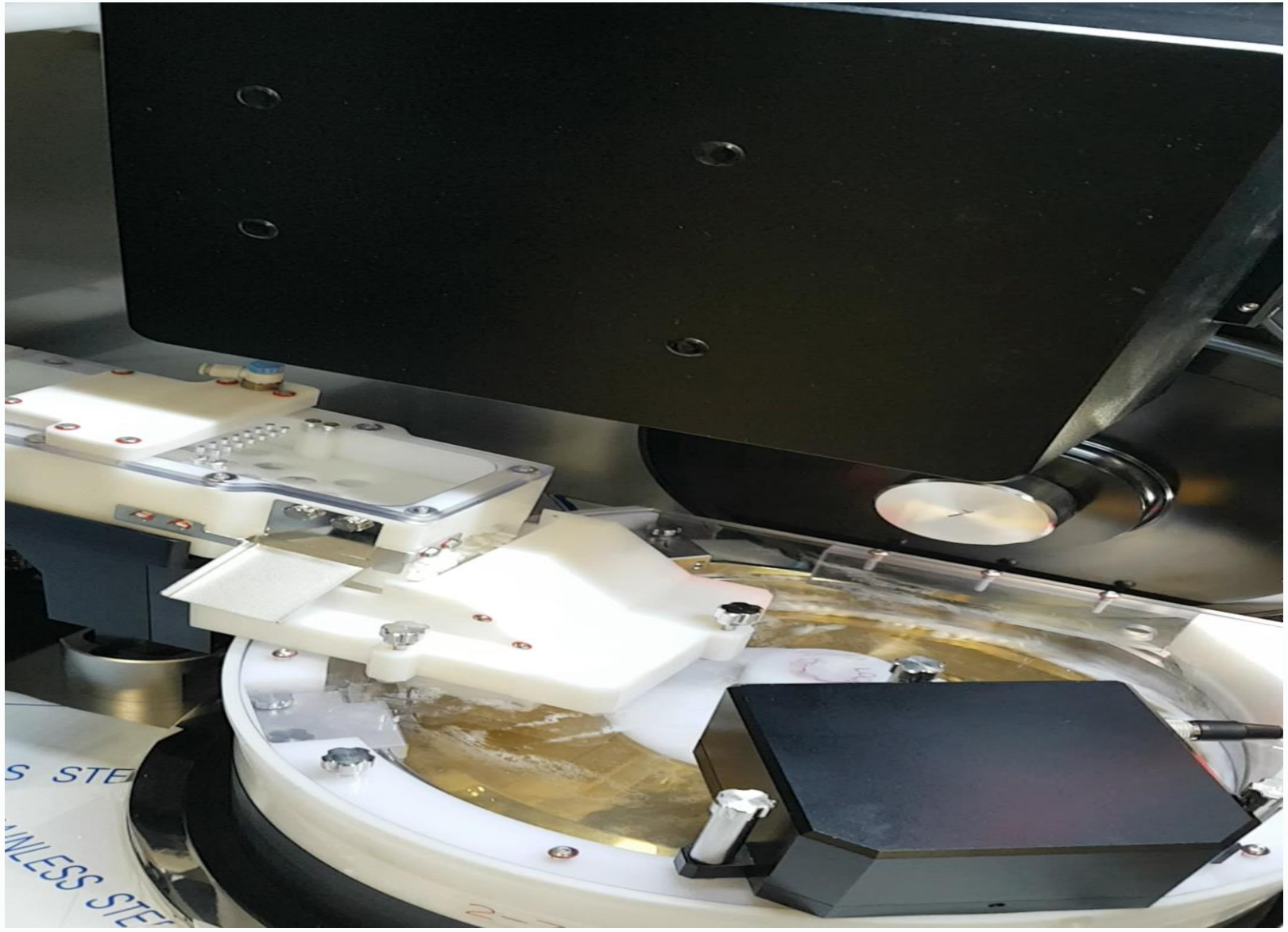
Inspection Range

	Tablet	Capsule
Type	Uncoated Film-Coated [Option] Sugar-Coated	Hard Capsule
Size	Length: 5~24mm Width(Diameter): 5~12mm Height(Thickness): 2~8mm	Size: #0,#1,#2,#3,#4 [Option] #00 & #5

Capacity

	Tablet(Length)			Capsule(Type)				
Size	Round 5mm	Round 8mm	Oval 14mm	#4	#3	#2	#1	#0
Max (1hour)	~500,000	~400,000	~190,000	~200,000	~185,000	~170,000	~155,000	~145,000

3-4 Inspection & Capacity

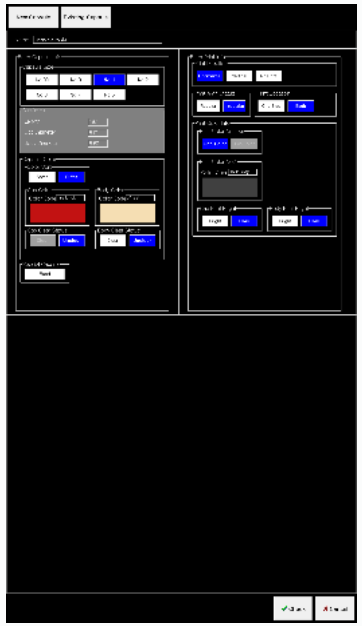
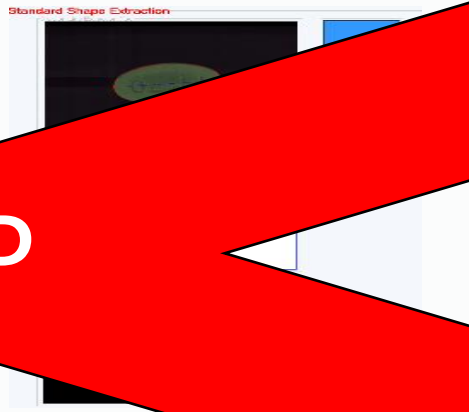
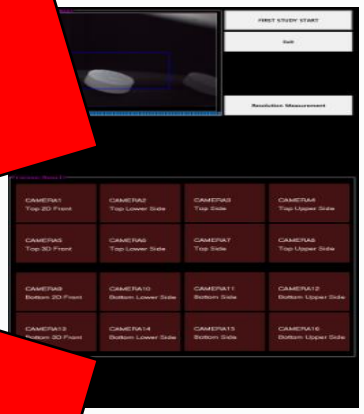
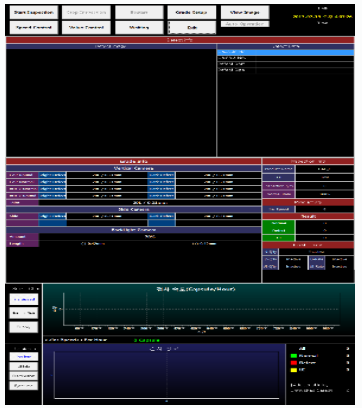


3-5 Discharge method

4 Technologies

4-1 Easy Set up / Saving Time

New Product / 30 Mins

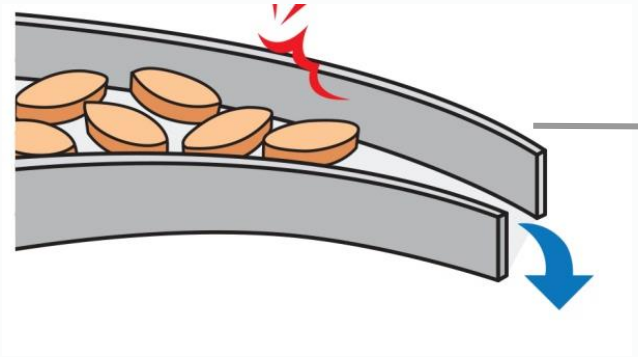
1. Input	2. M/C Set-Up	3. Image Capture	4. Feature Extraction	5. Auto Study	6. Inspection
					

SKIP

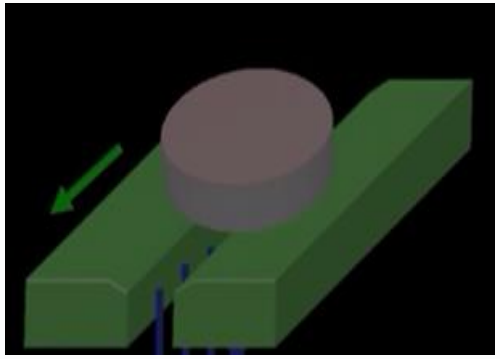
NFA	Training Time	1 Week
Others	Training Time	1 Week / 2 Week / 3 Week / 4 Week

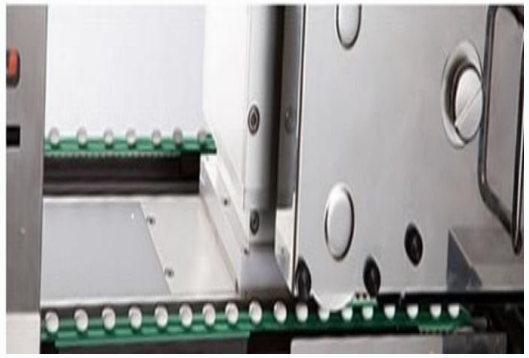
4-2 Change Parts / Jam X, Speed ↑

Other

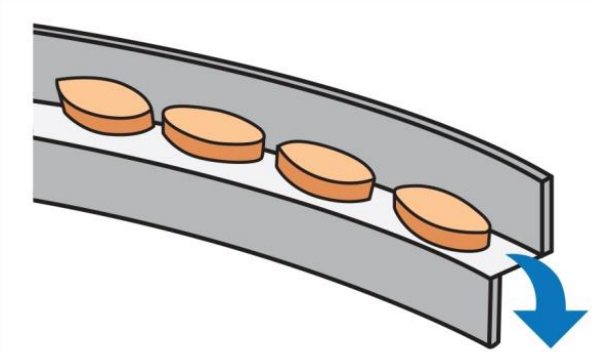


Speed ↓





NFA (Open Sorting)



Speed ↑

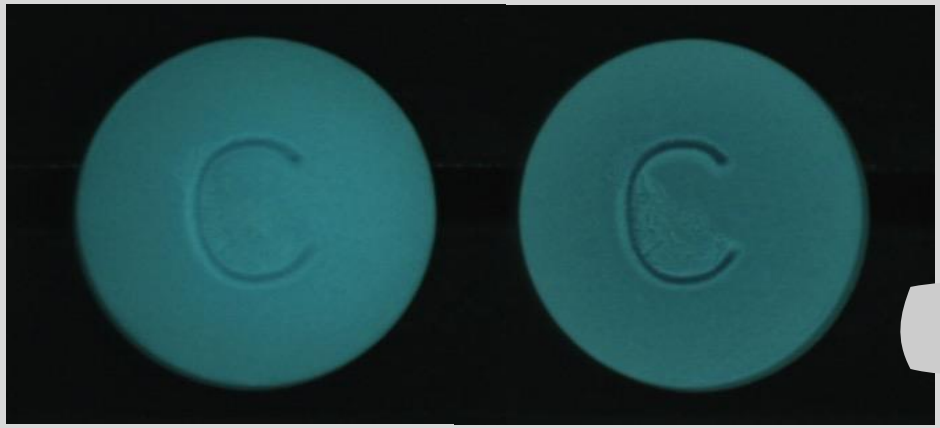
4-2 Change Parts / Compatible

Provide 6 Set
(1 Set : 3 Parts)

Same Width = Same Change Parts
(Width 6mm~11mm)

4-3 3D Camera / Tablet Sticking Inspection

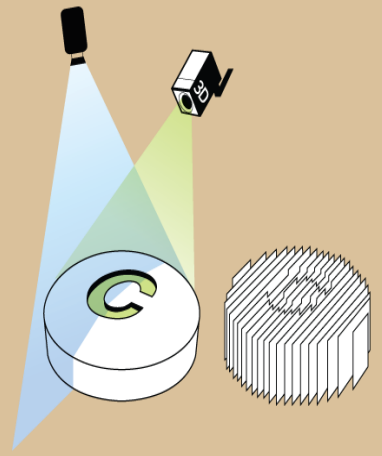
2D Camera : Sticking Tablet Image

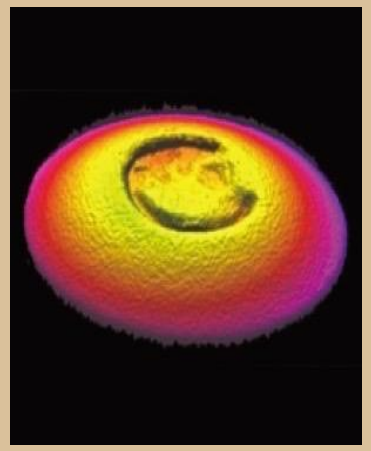


》 Due to the influence of lighting,

Not deep sticking is hard to inspect.

3D Camera : Sticking Tablet Image

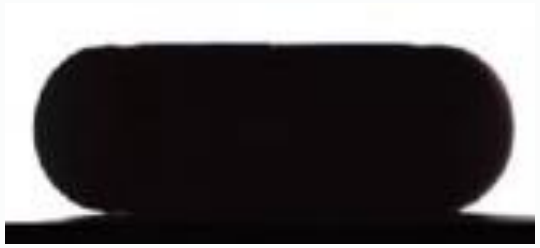




》 **3D Camera can measure the depth of sticking.**

4-4 IR Camera / Powder Volume Check

Other



Checking by Shadow

- Powder Volume Check : **Not Available**
- Dark Color Capsule : **Not Available**

NFA

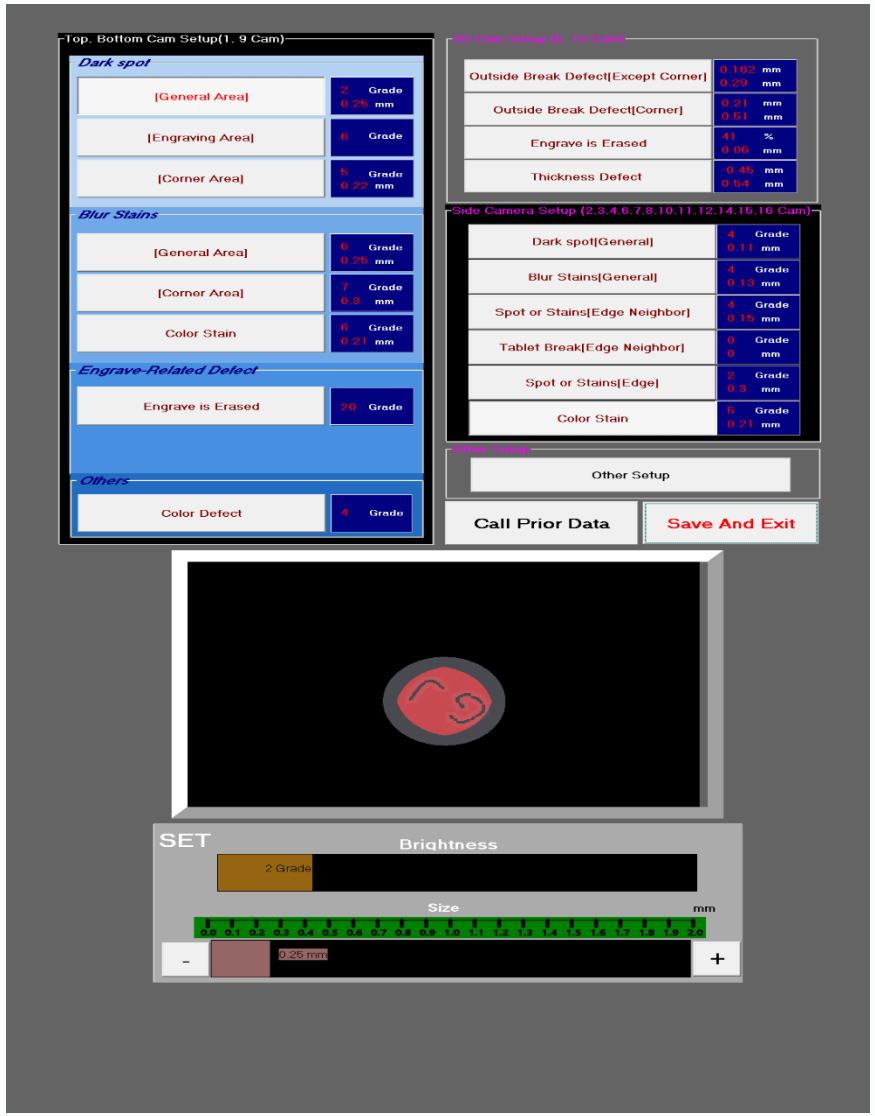
Checking by Laser (IR Camera)

- Powder Volume Check : **Available**
- Dark Color Capsule : **Available**

4-5 IPB Board / High Speed Processing

- Designed by NFA
- Designed for Inspection Algorithm, [Image Processing Board]
- Designed for exhausting the heat easily, Using the IPB rack
- High-speed Calculation
- Immediate help for maintenance.

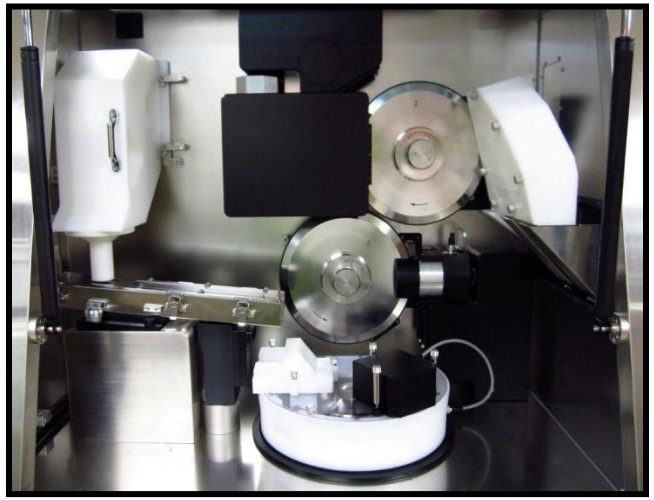
4-6 Grade Setup



5 Maintenance

5-1 Easy Cleaning / Speed ↑

Before Disassembly

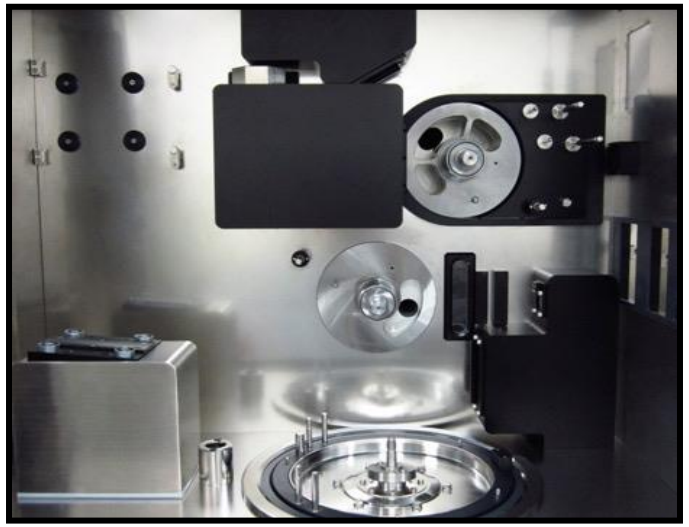


One-Touch Detached

Tools (X) Hand (O)

Easy to clean by hand

After Disassembly



Water Cleaning (O)

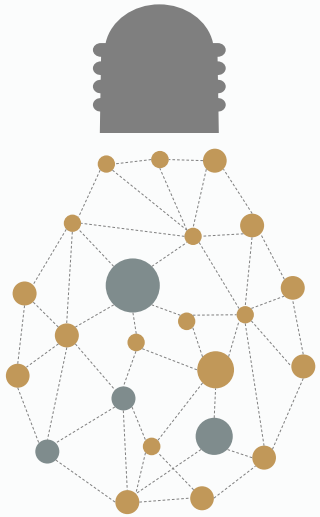
Simple Structures

Camera Module → Sealed

5-2 Remote Control Service

6

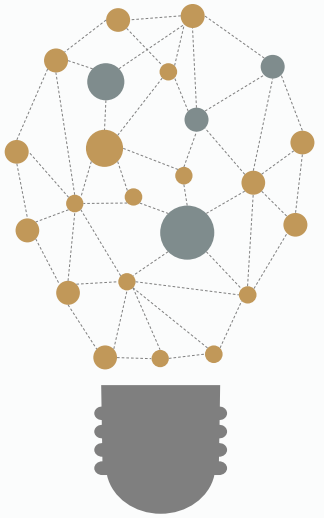
Q&A / Conclusion

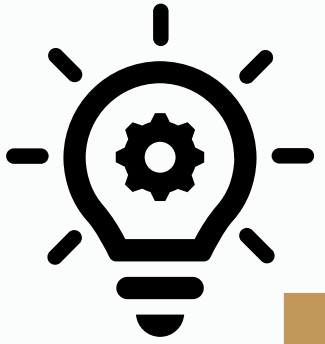


VISION INSPECTION SYSTEM

NFA

THANK YOU





New Line Up

DELMA Series

Double capacity of SELMA
Auto Vision Inspection for Tablet & Capsule

DELMA **T** Vision Inspection Machine for Tablet

DELMA **C** Vision Inspection Machine for Capsule

DELMA **H** Vision Inspection Machine for T&C

3-3 Inspection Range & Capacity

Inspection Range

	Tablet	Capsule
Type	Uncoated Film-Coated [Option] Sugar-Coated	Hard Capsule
Size	Length: 5~24mm Width(Diameter): 5~12mm Height(Thickness): 2~8mm	Size: #0,#1,#2,#3,#4 [Option] #00 & #5

Capacity

	Tablet(Length)			Capsule(Type)				
Size	Round 5mm	Round 8mm	Oval 14mm	#4	#3	#2	#1	#0
Max (1hour)	~1,000,000	~800,000	~380,000	~400,000	~370,000	~340,000	~310,000	~290,000

LIMA Series

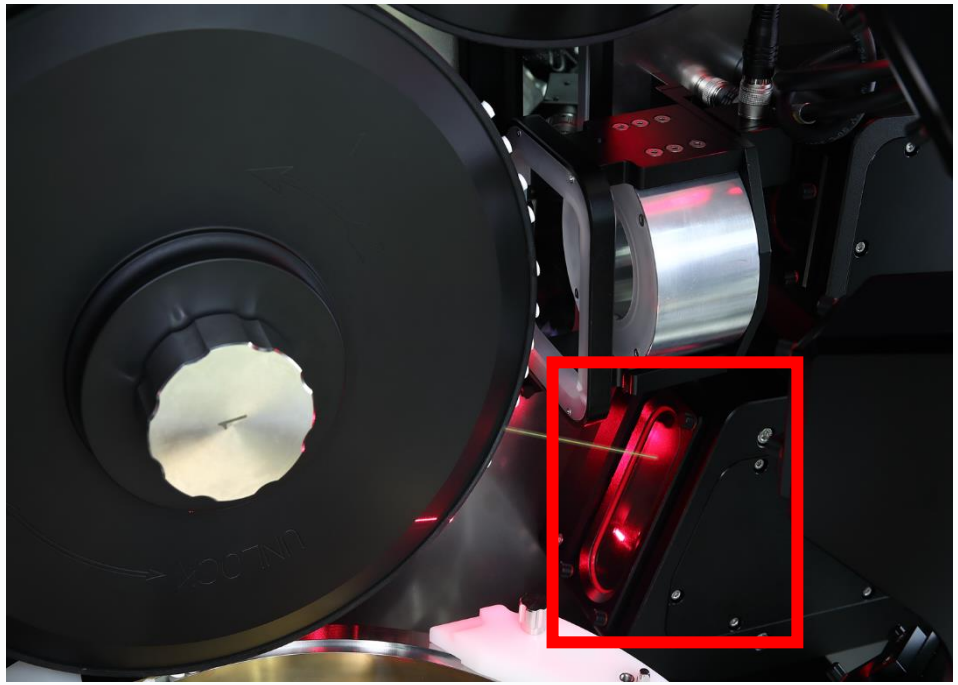
UV Laser Print and Inspection for Tablet & Capsule

LIMA 200- **T** Laser Print + Tablet Inspection

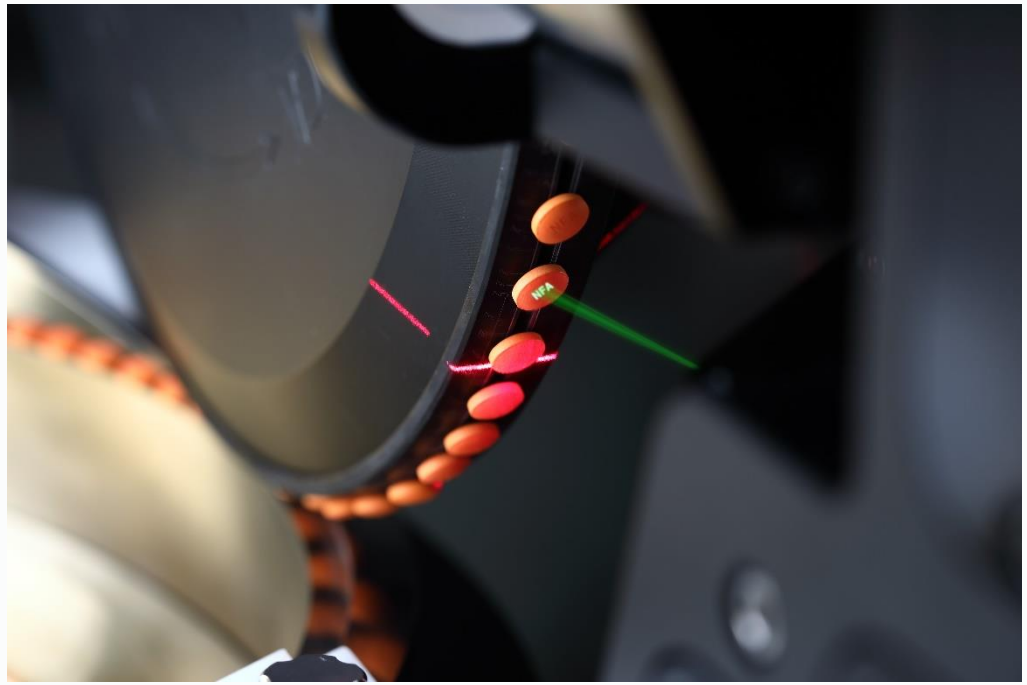
LIMA 200- **H** Laser Print + Tablet & Capsule Inspection

1-1 Laser Composition

Using only Inspection Function is possible

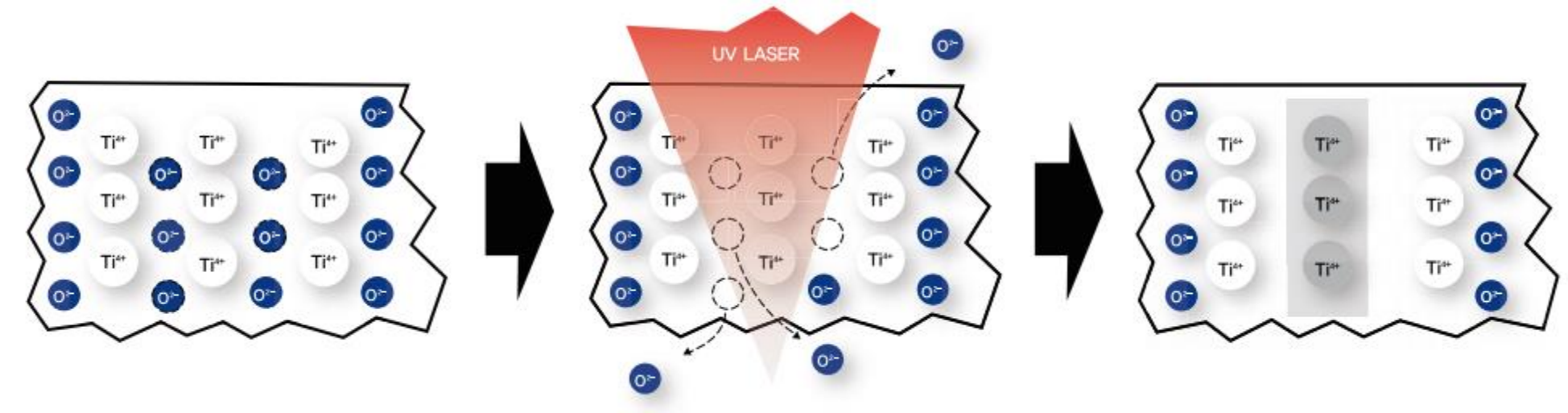


(Position of Laser)



(Laser Print)

1-3 Printing method

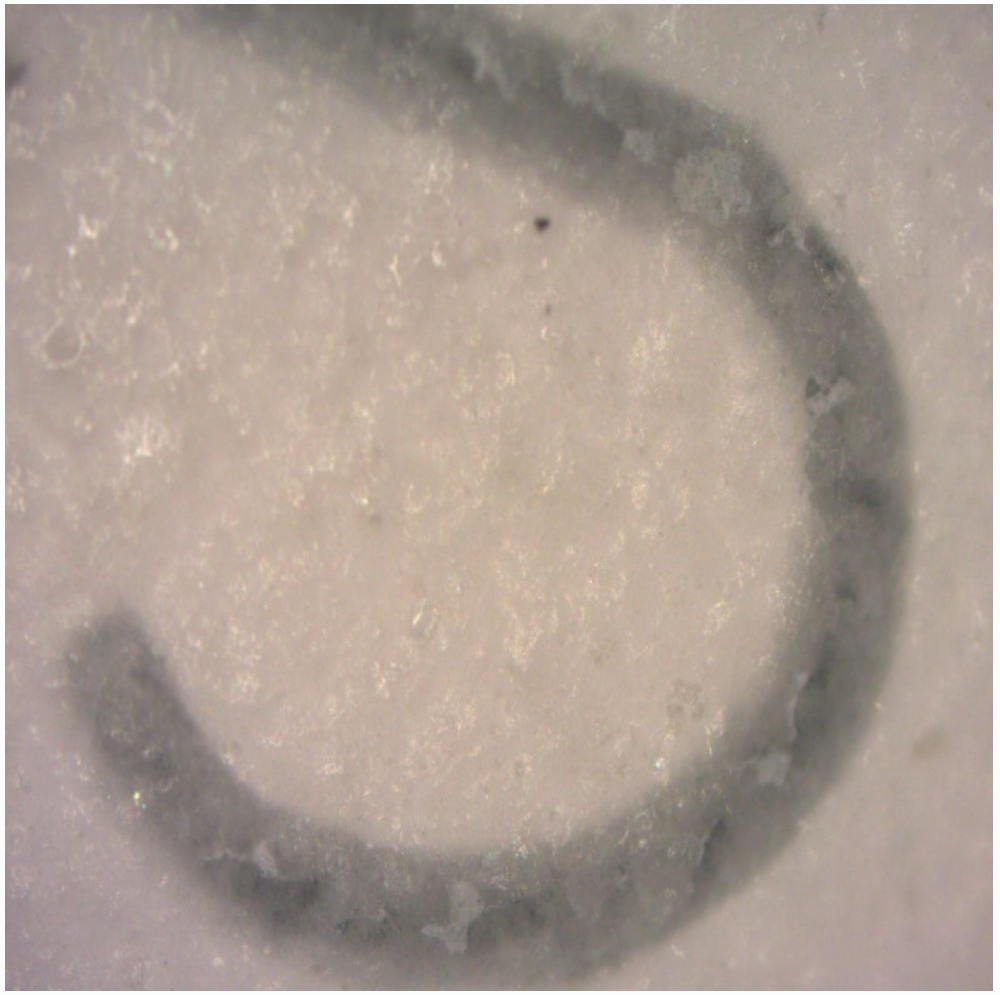


Coated Tablet Surface= (O_2) +(Ti)

Eliminate (O_2) by UV Laser

The Surface that exposed by laser turns to gray color.
(No any bad effects to tablet)

1-2 Printing Quality



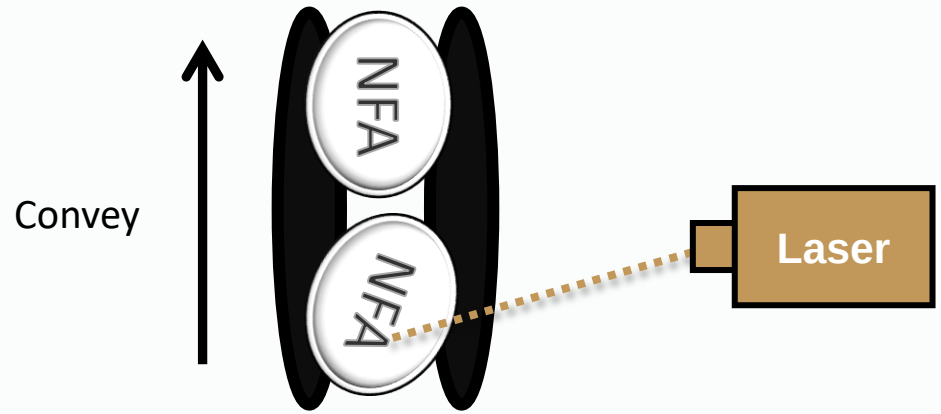
1-2

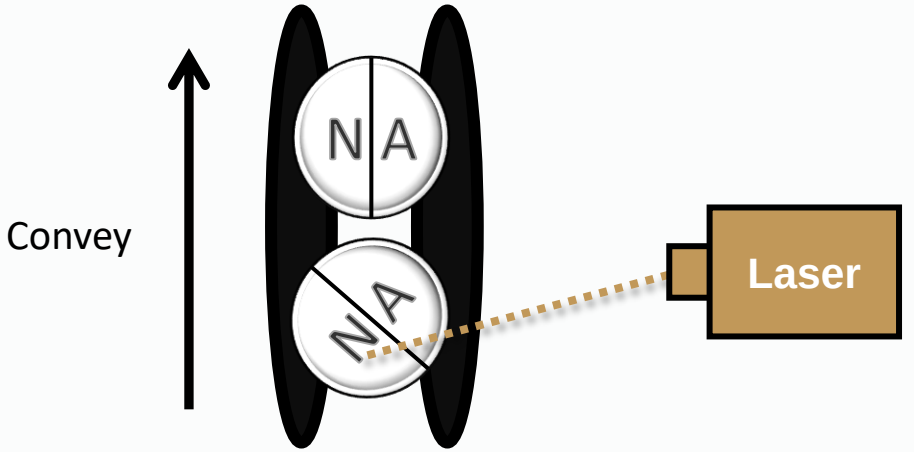
UV Laser Print Quality (Sample)

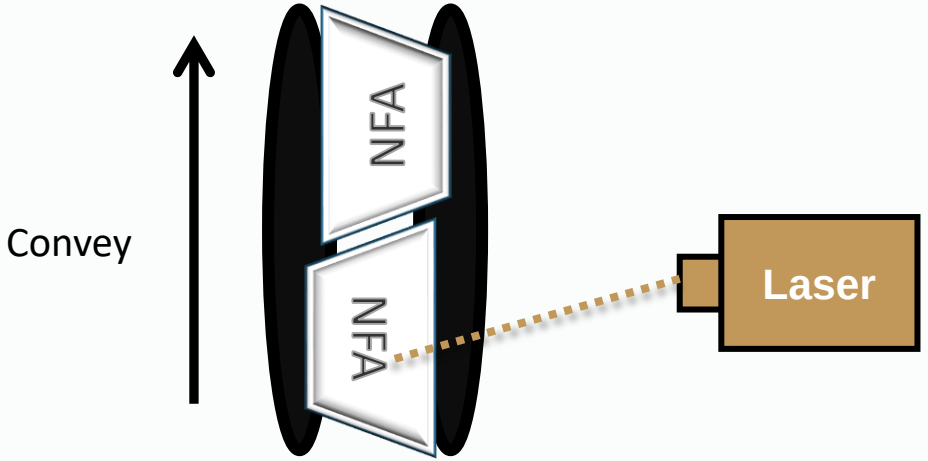
Drawing, Logo, Word → High quality print.

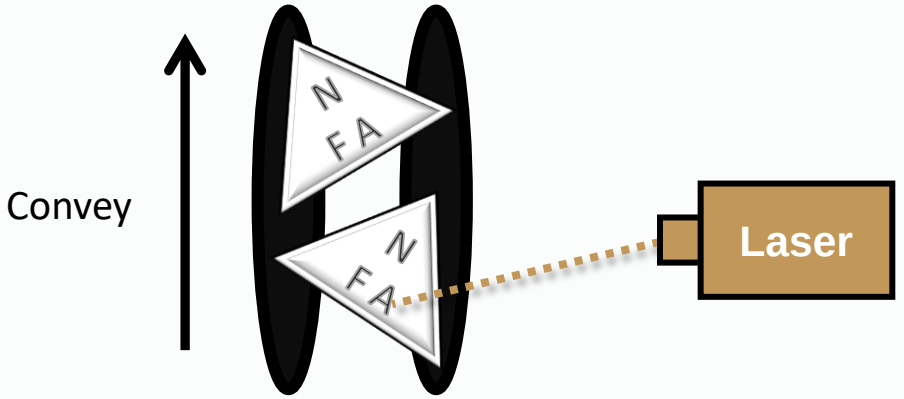
1-4

Trace Print





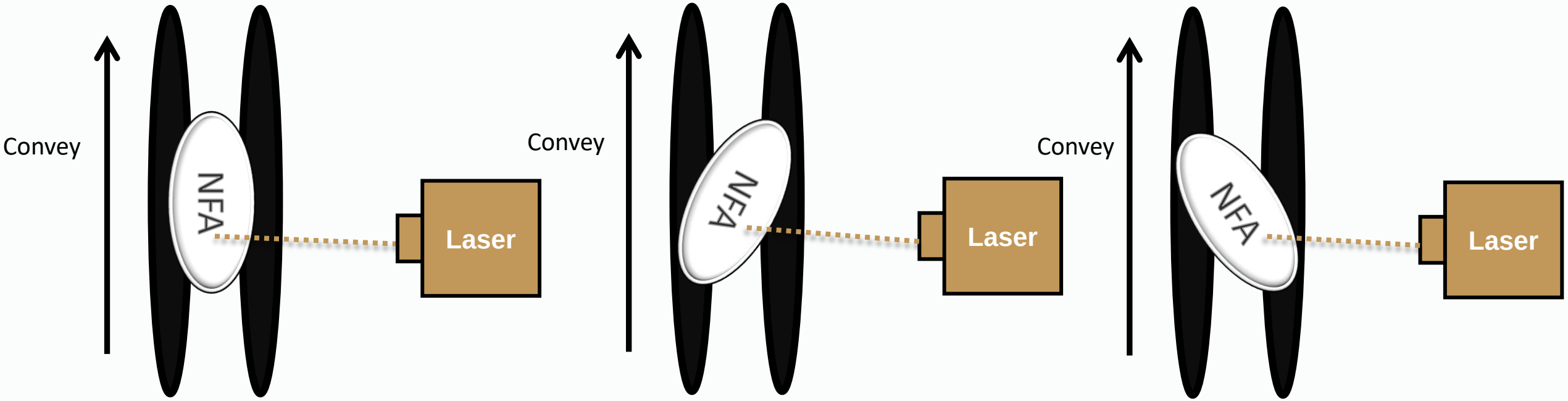




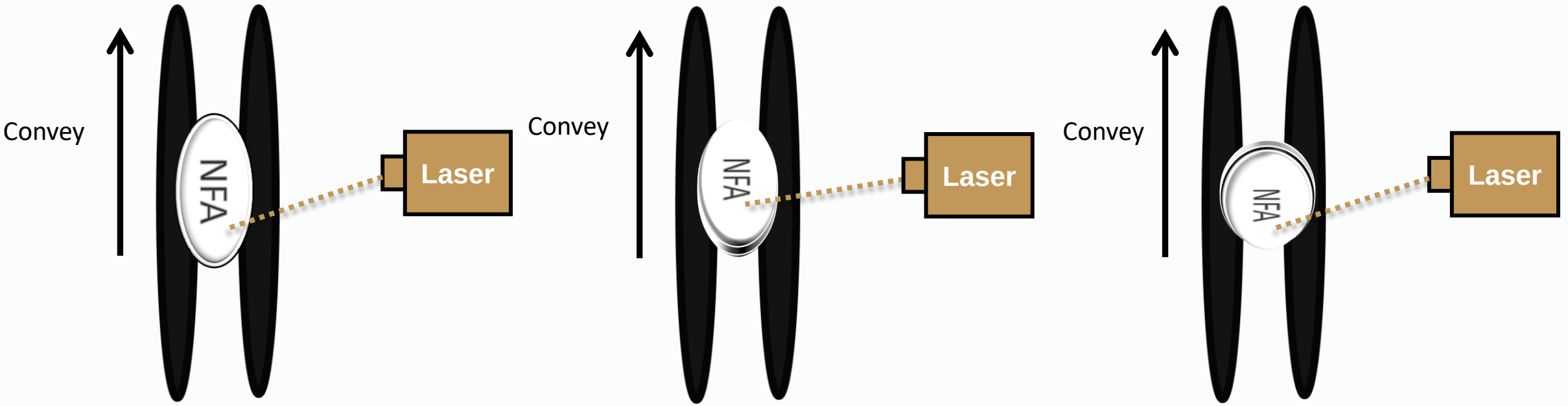
- Regardless of shape and position of tablet, trace the point and printing

1-4

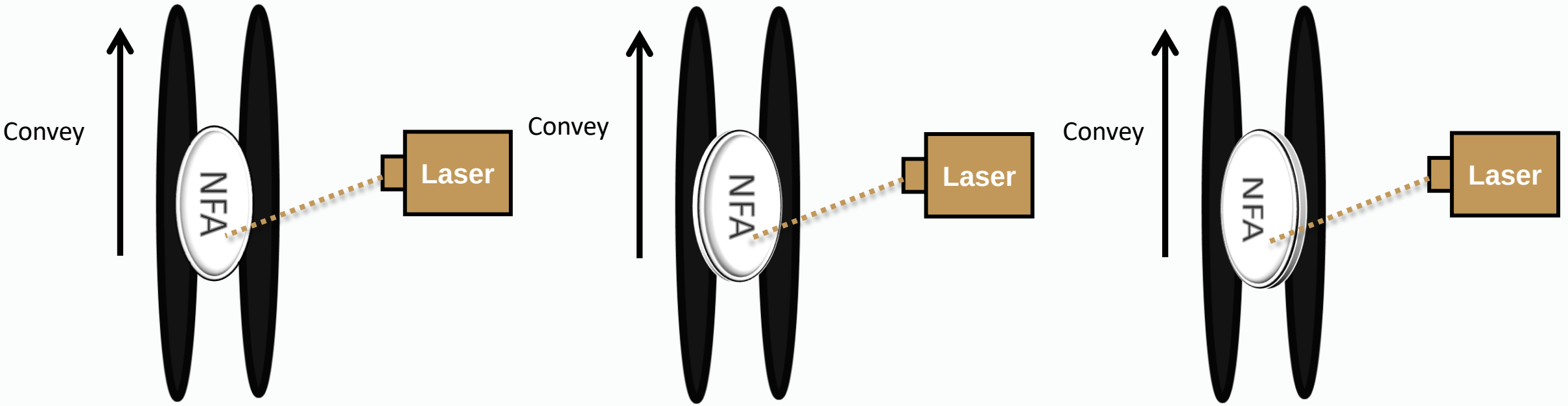
Trace Print(Unstable Position)



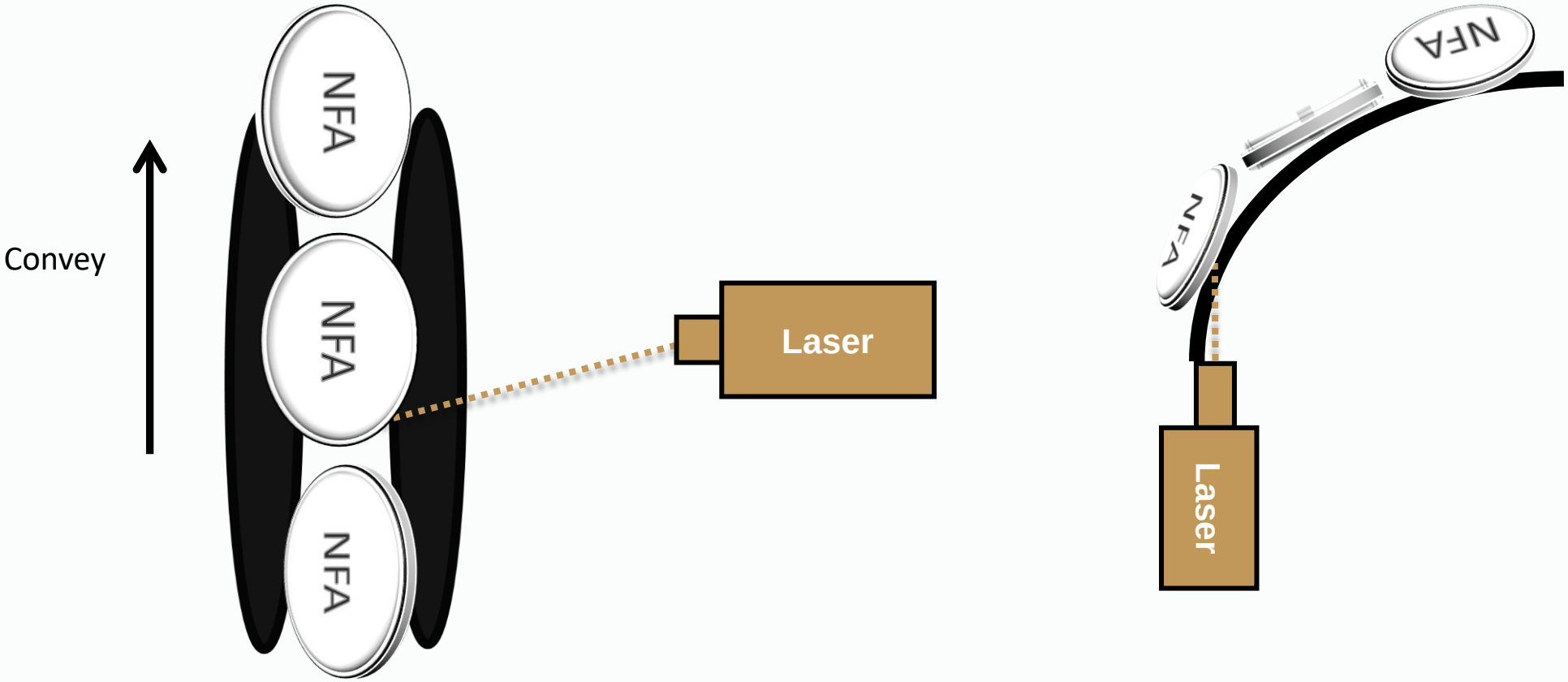
1-4 Trace Printing Tilting(Up&down)

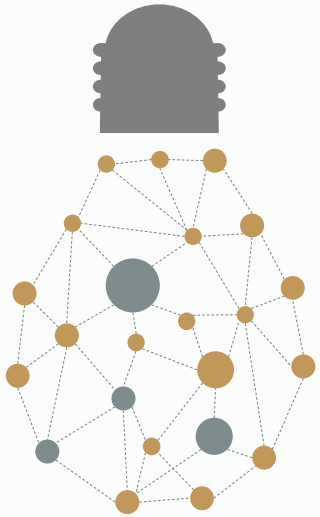


1-4 Trace Printing Tilting(Left&Right 1)

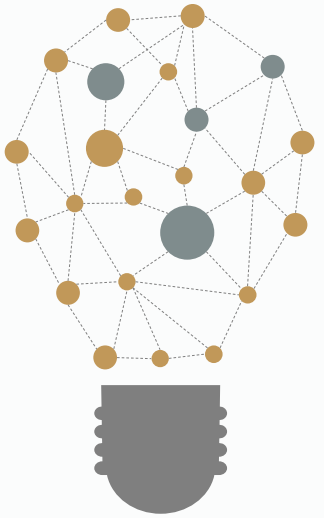


1-4 Trace Printing Tilting(Left&Right 2)





VISION INSPECTION SYSTEM

NFA

THANK YOU