



Wintec 被動元件外觀檢查機
For 0402(01005), 0603(0201) Devices
(WVS-N8 Series)

立享科技股份有限公司

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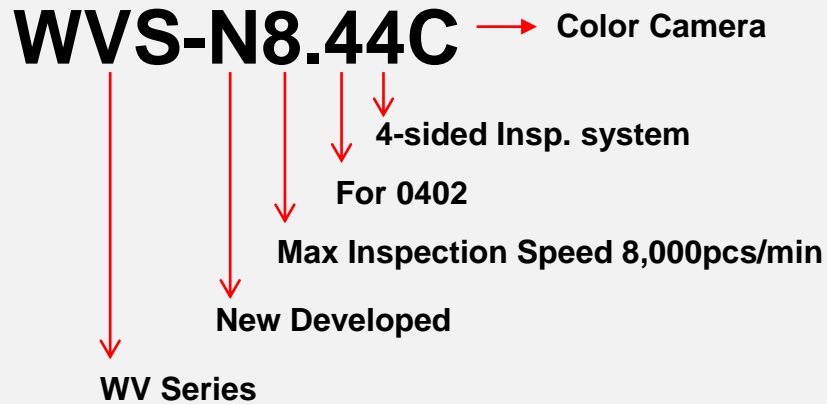
II 何謂高水準的晶片檢查設備？

- 1 不良類形的檢出能力 - 打光
- 2 穩定的排料分選能力 - 觸發&吹料
- 3 晶片檢查的正確性 - 程式偵測
- 4 晶片檢查的靈活性 - 工程支援
- 5 大量生產的適用性 - 穩定性

Specifications and Construction of **WVS-N8 Series**

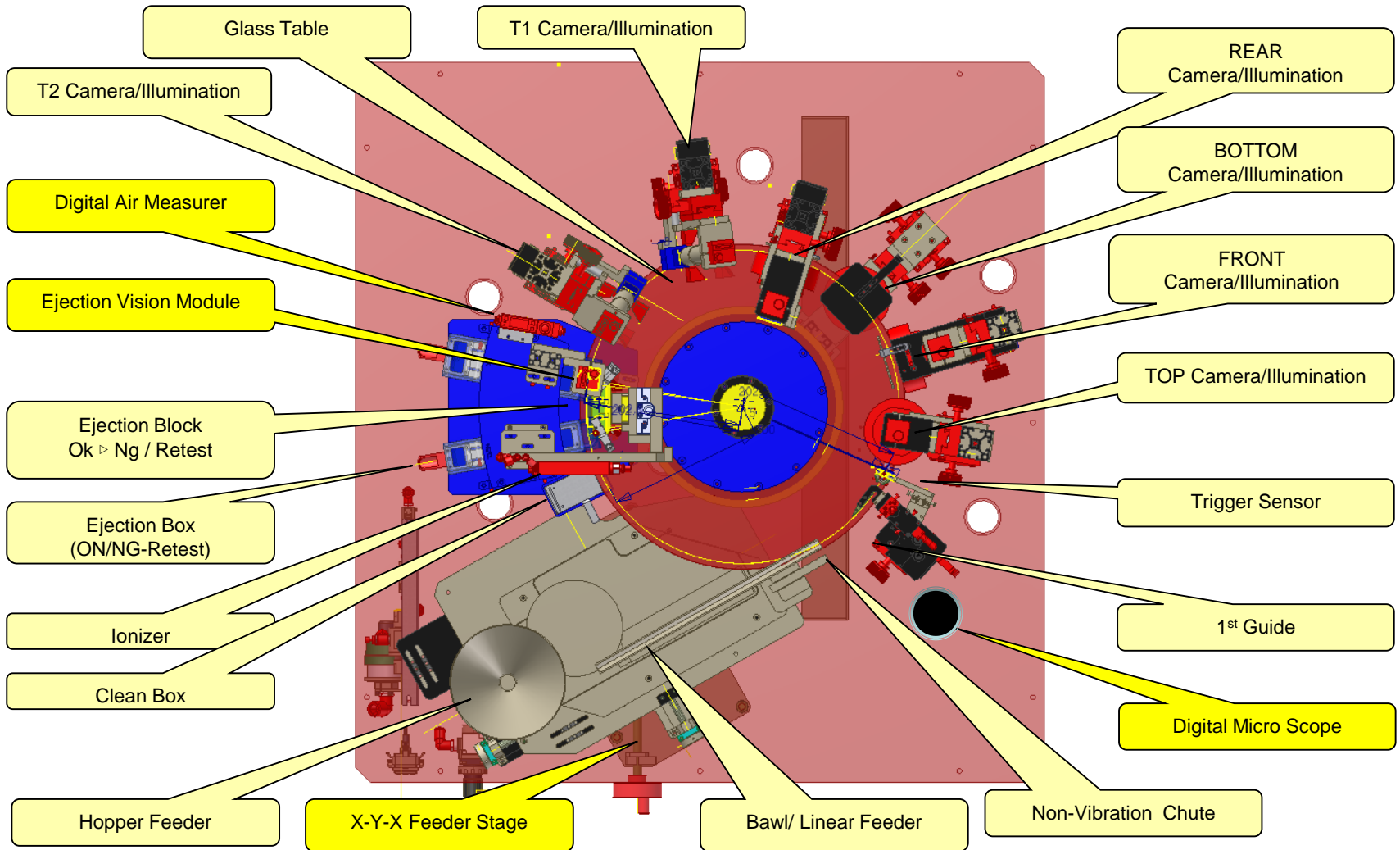
TERM	SPECIFICATION
Chip	MLCC and Similar chip types
Chip Sizes	0402, 0603 (Metric)
Defects	Ceramic Defects : Chip outs, Cracks, Holes, De-lamination, Exposed, electrodes, Missing corners, Surface contamination Termination Defects : Holes, Scratches, Straight edges, Smears, Surface contamination Dimensional Defects : Length, Width, Thickness, Termination Bandwidth
Scope	4 or 6-sided configuration
Throughput	3,500~7,000 chips/minute (Depends on Chip condition for parts feeder)
Sorting	1good Bin, 2 Reject Bins , Recycled clean Bin (Optional)
Resolution	2.2μm / pixel at 0402, 3.8μm / pixel at 0603
Camera	High speed B/W or Color area CCD 4 ea or 6ea , Ejecting Check Camera .
Illumination	High contrast Red/Blue 2Color LED illumination and Top Rectangle Blue LED – TOP,BOTTOM,REAR,FRONT High contrast White 1Color LED illumination-T1,T2
Feeding	1 Hopper + 1 Bowl + 1 Linear + 1 Return Feeder
Computer	1 PC (Intel i7), 250G HDD, 2GB, 17" LCD Touch Monitor 1ea.
Software	Easy model teaching, Ok/Ng level setup, database, Windows XP Easy to use Windows interface for all system functions. All setup parameters can be stored in a part specific file for instant setup.
Air	4~5kgf/cm ² clean & dry air
Power	220VAC, 50~60Hz, 2KVA
Dimensions	W x D x H = 1120mm x 1120mm x 1726mm
Weight	500Kg

Specifications and Construction of WVS-N8 Series

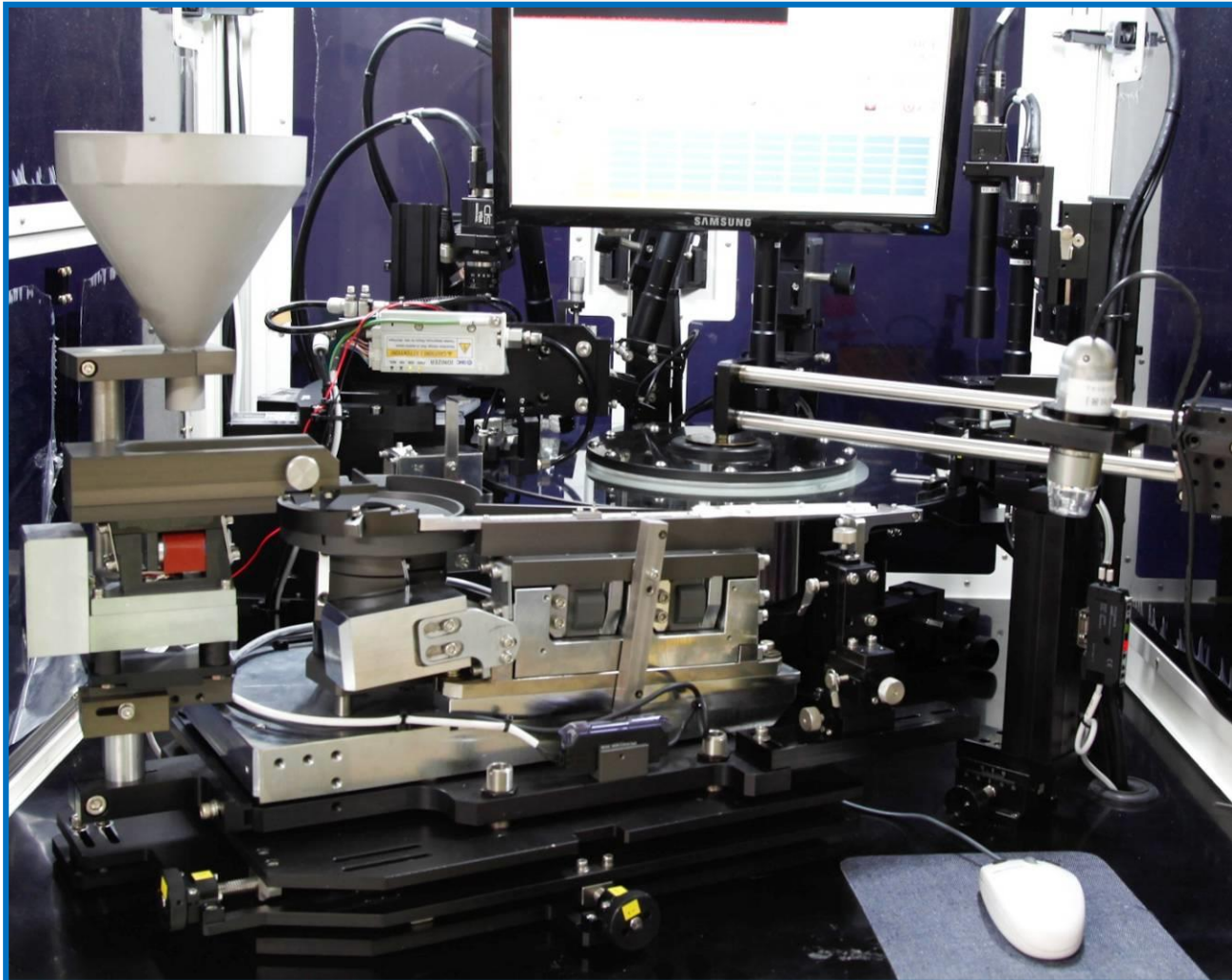


	N8.44	N8.46	N8.64	N8.66
Inspected Chip	0402	0402	0603	0603
Resolution (um/pixel)	2.2	2.2	3.8	3.8
# of Camera	4	6	4	6
Camera	B/W, Color	B/W, Color	B/W, Color	B/W, Color
Insp. Speed (pcs/min)	5,000	5,000	7,000	7,000

Specifications and Construction of WVS-N8 Series



Specifications and Construction of WVS-N8 Series



Features of WVS-N8 Series

- 1 Productivity of Inspection
- 2 Inspection Power of defect parts
- 3 Reliability of Ejection
- 4 Facility of Operation

Features of **WVS-N8 Series**

1 **Productivity of Inspection**

→ **High Speed Feeding System**

→ **Innovative Guide Module**

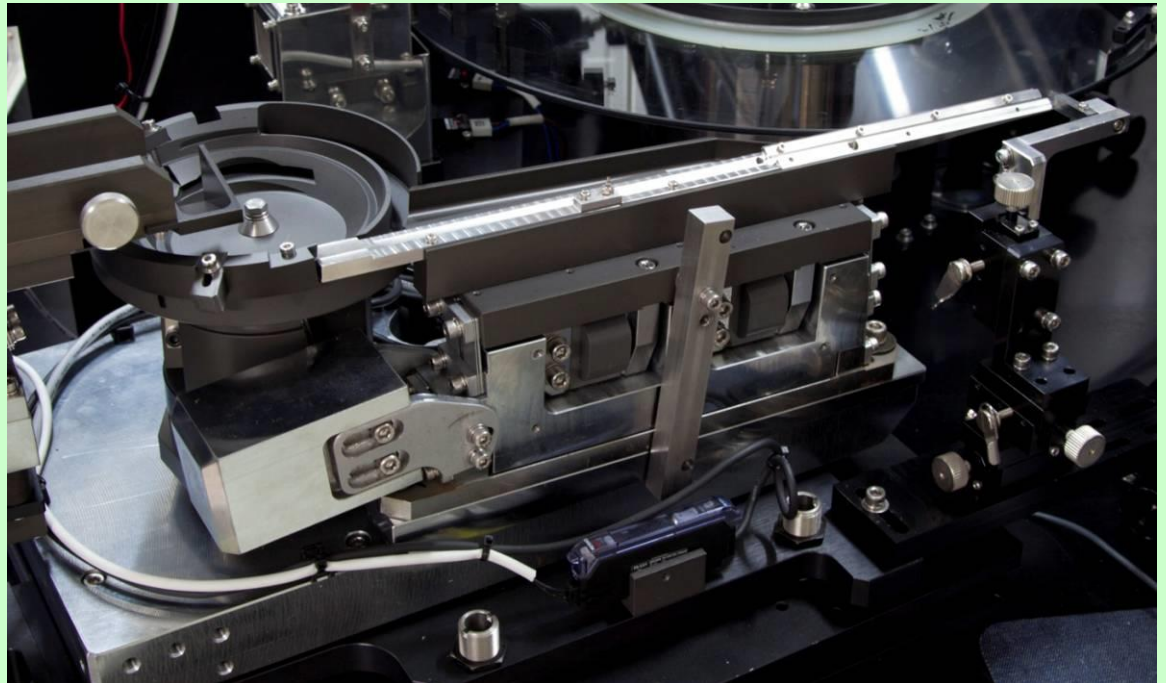
→ **High Speed Ejection Actuator**

→ **High Speed Inspection Algorithm**

1 Productivity of Inspection

→ High Speed Feeding System

- High Speed Feeder
- Speed : 8,000 ± 10%
- Non Vibration Chute
- Air Cutter (Optional)



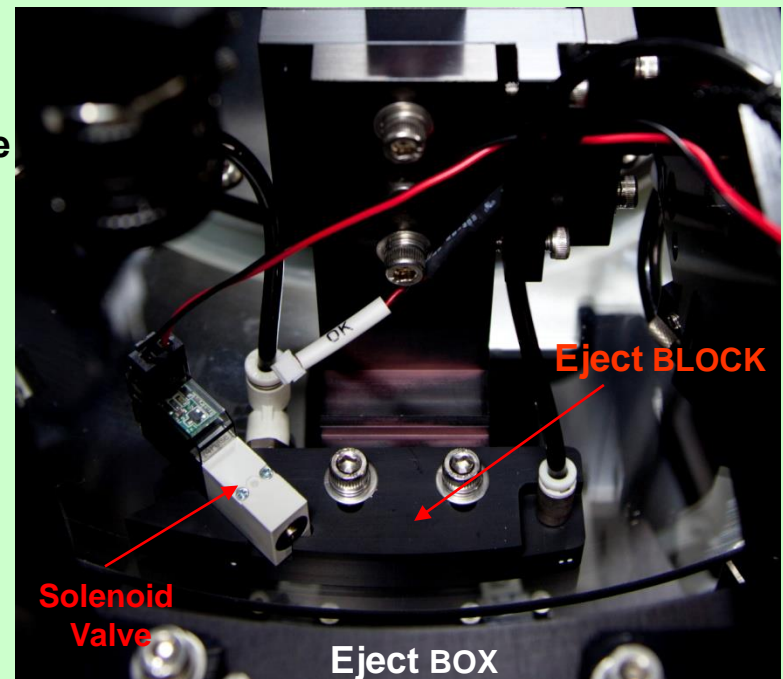
1 Productivity of Inspection

→ High Speed Ejection Actuator

- High Speed Solenoid Valve => 20 usec ($\pm 10\%$)
- 5,000,000,000 life times
- OK Ejection Time : 30us/Chip.
- NG/Retest Ejection Time :
30us~ before next chip's just arrival time

Eject NG

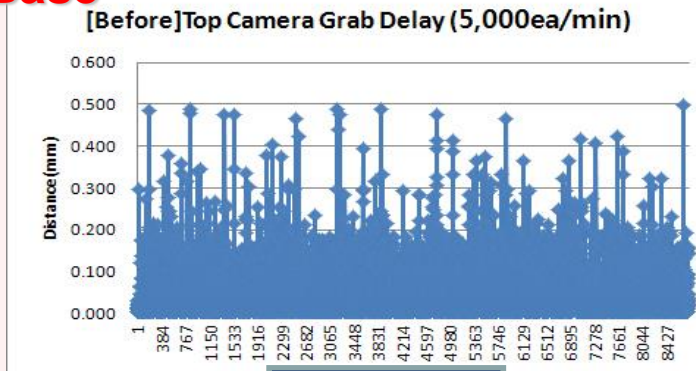
Eject OK



1 Productivity of Inspection

→ High Speed Inspection Algorithm

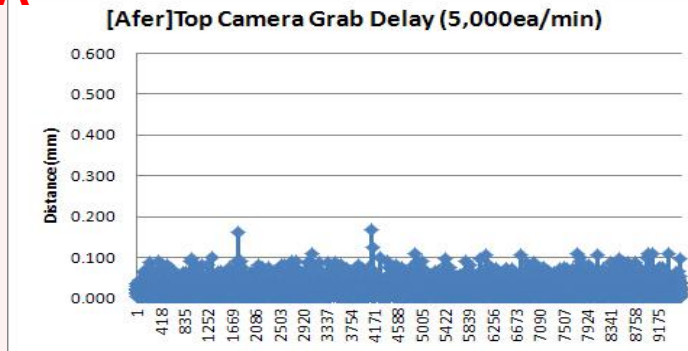
PC Base I/O



● Sequential Processing Method

- 1Core sequential processing
- Merit : Simple design
- Demerit : At the same time, only one image data processing possibility
- Inspection Speed : **3,000 ea/min Below**
- [0402 Chip] Camera Grab Start Delay Analysis
 - The range of fluctuation is big(~50%)

FPGA I/O



● Parallel Processing Method

- 4Core thread processing
- Merit : At the same time, many image data processing possibility
(Improved inspection speed)
- Demerit : Complicated to design
- Inspection Speed : **7,000 ea/min Over**
- [0402 Chip] Camera Grab Start Delay Analysis
 - The range of fluctuation is small(20%)

IV Features of WVS-N8 Series

2 Inspection Ability of defect parts

→ Stable Parts Loading

→ Stable Illumination (Brightness, Angle, Control)

→ High Performance Lens

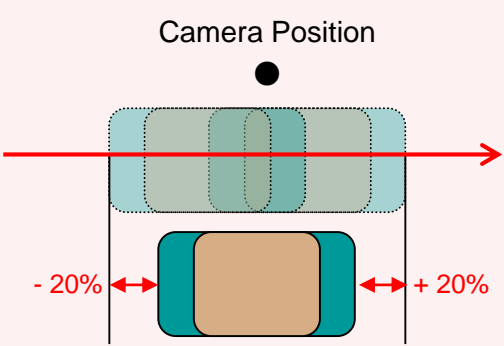
→ High Speed Camera

→ Image Processing Algorithm

2 Inspection Ability of defect parts

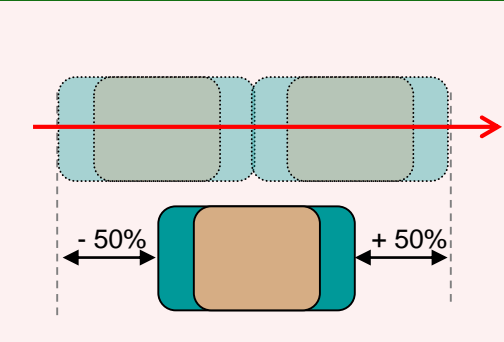
→ Stable Parts Loading

Camera Position



- Moving by +20% based on the center
- Capable of grabbing images at the precise position
 - Capable of inspecting under the equal illuminations
 - Better Inspection Ability.
- Better T1, T2-side inspection Ability in 6-side inspection system.
 - Better inspection Ability

**FPGA
I/O**



- Moving by +50% based on the center

**PC Base
I/O**

2 Inspection Ability of defect parts

→ Stable Illumination (Brightness, Angle, Control)



** Illumination History



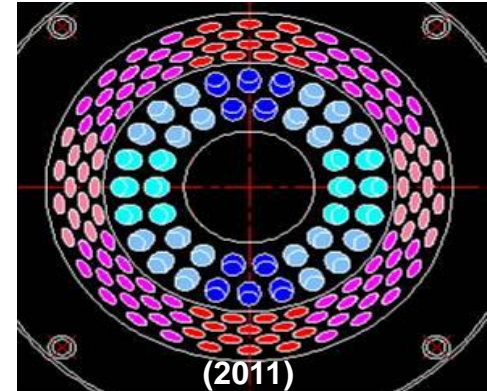
(2004)



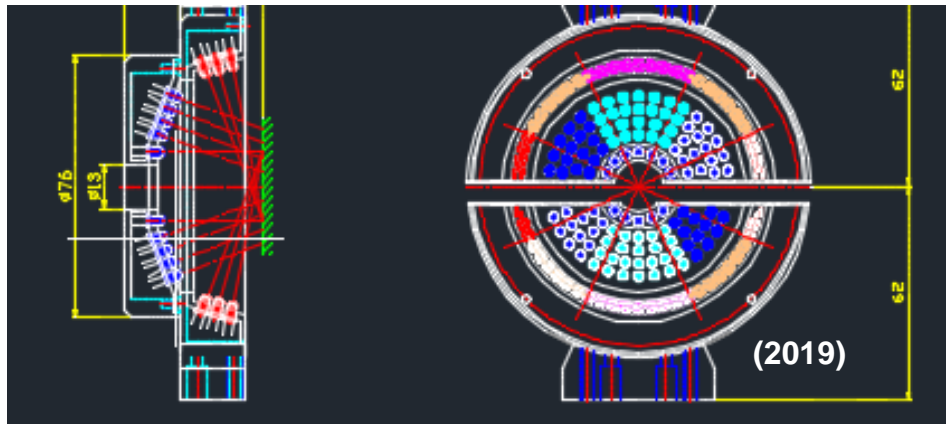
(2006)



(2009)



(2011)



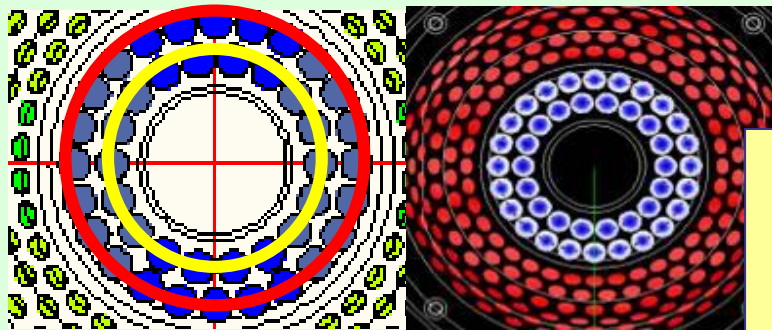
(2019)

2 Inspection Power of defect parts

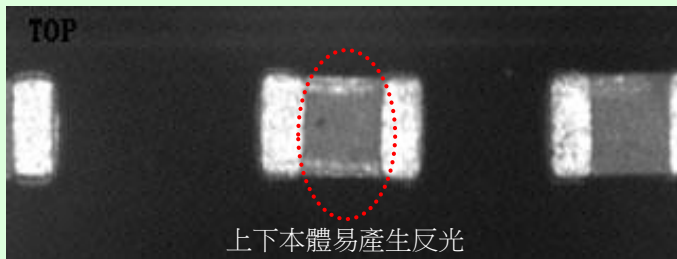
→ Stable Illumination (Control)



< Before >



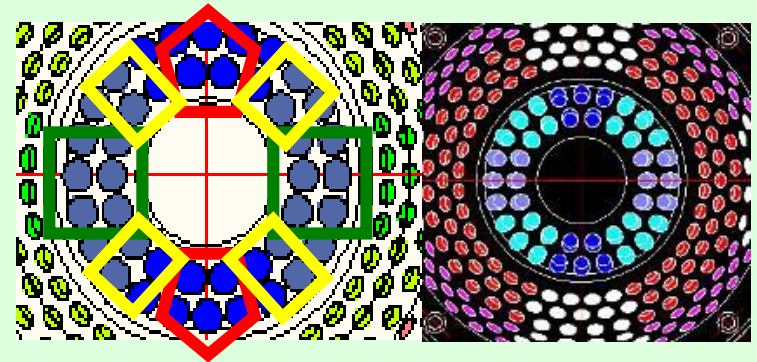
◎ 上下本體易產生反光



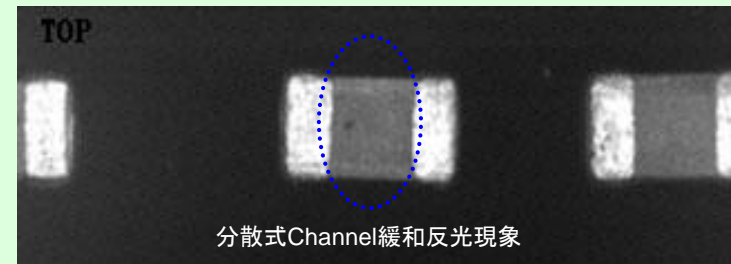
上下本體易產生反光

< After >

-上/下各 1Ch+左/右各1Ch+對角線各 1Ch = 3Ch



◎ 分散式Channel緩和反光現象



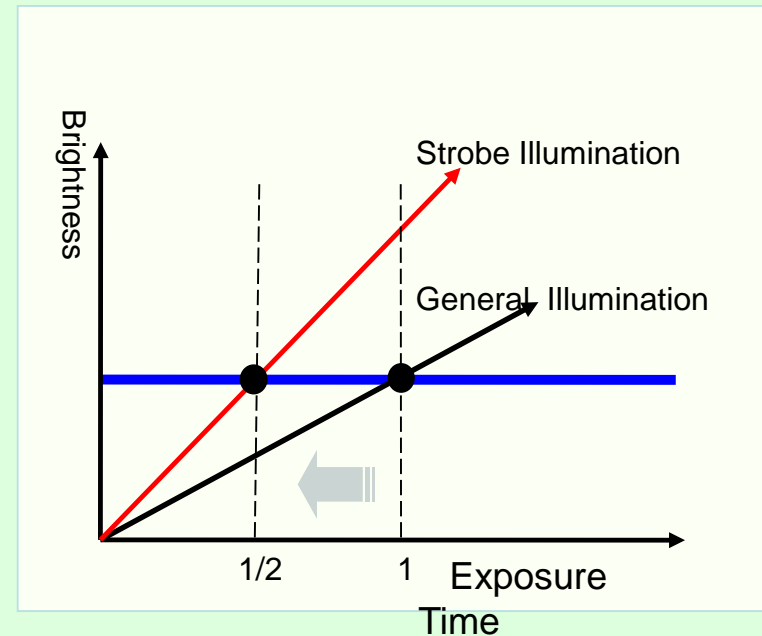
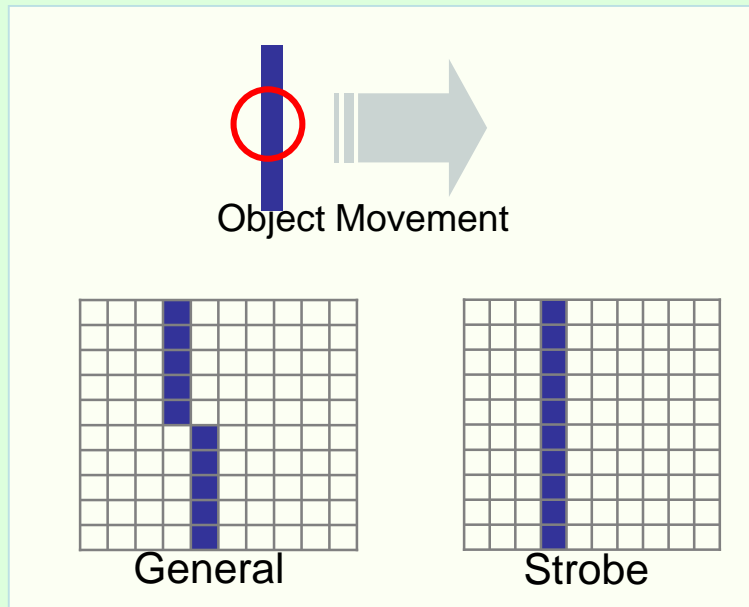
分散式Channel緩和反光現象

2 Inspection Ability of defect parts

→ Stable Illumination (Brightness)

Feature of Strobe

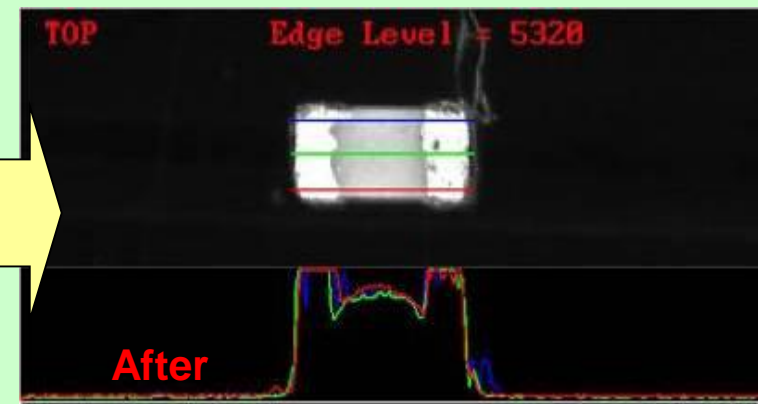
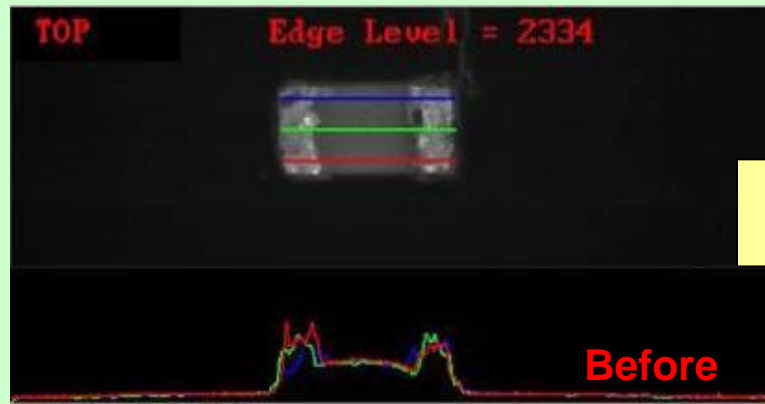
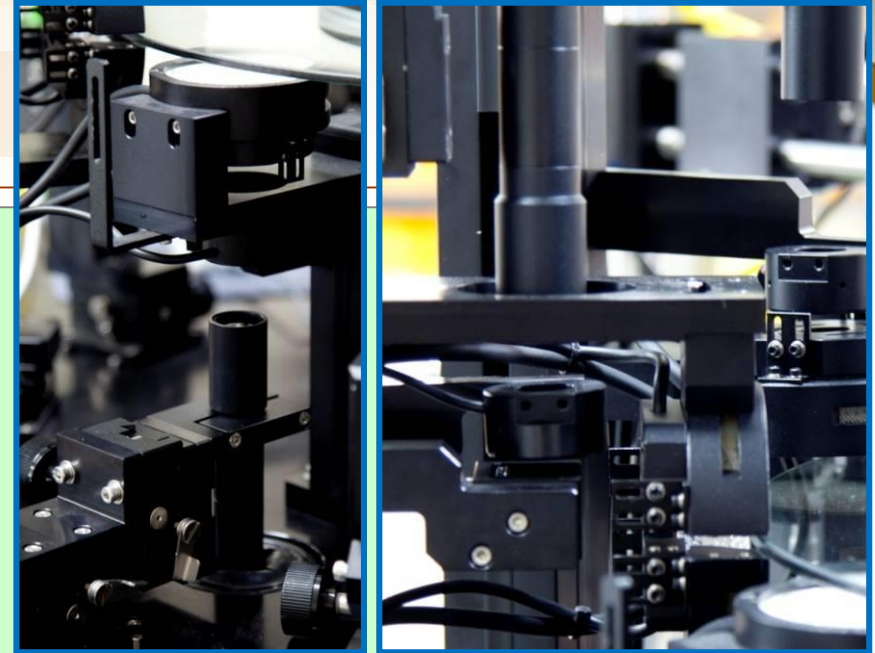
- Increase in amount of light by 100% → Slower Shutter Speed → Sharper Image Grab → Better Inspection Power
- Excellent at inspecting 0402 (part)



2 Inspection Ability of defect parts

→ High Performance Lens

- Resolution : 2.2um/pixel at 0402
- Brightness : x2 Standard Lens
- High Contrast Image Grab.



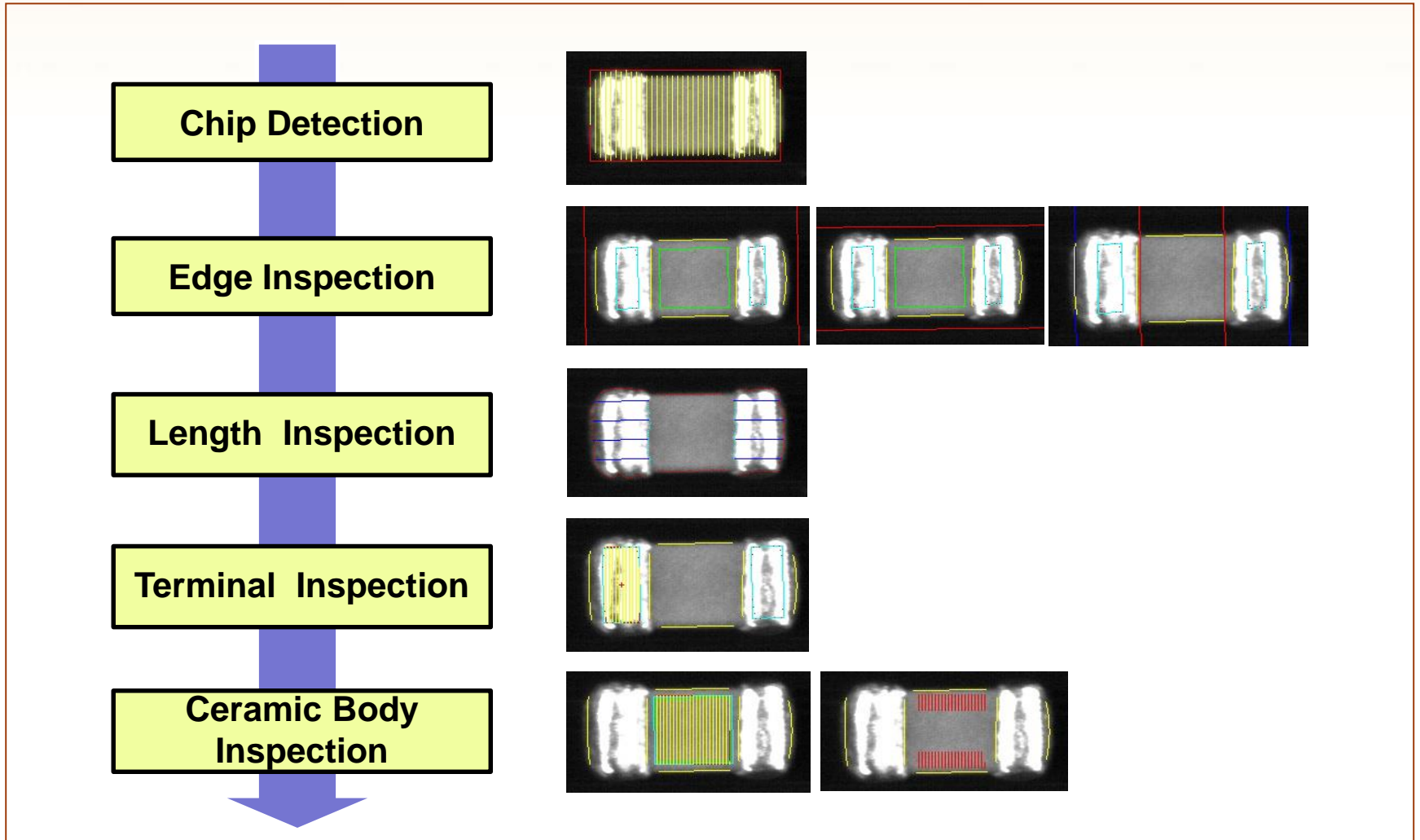
2 Inspection Power of defect parts**→ High Speed Camera**

- TYPE CAMERA LINK
- MAKER SENTECH(JAPAN) /Crevis (Korea)
- MODEL STC-CL33A
- SPEC. Speed : 120/200 Frames/sec (Full/Partial Frame)
 Shutter Speed : 1/30,000
 CCD Size : 1/3 Inch Progressive Scan CCD



2 Inspection Ability of defect parts

→ Image Processing Algorithm



IV Features of **WVS-N8 Series**

3 Reliability of Ejection

→ Stability of Parts Loading

→ Ejection Unit

→ Ejection Vision Module

→ Independent Ejection Module

→ Ejection BOX

3 Reliability of Ejection

→ Stability of Parts Loading

- High definition Motion Control
- Capable of ejecting parts at the precise position.
 - Better inspection power

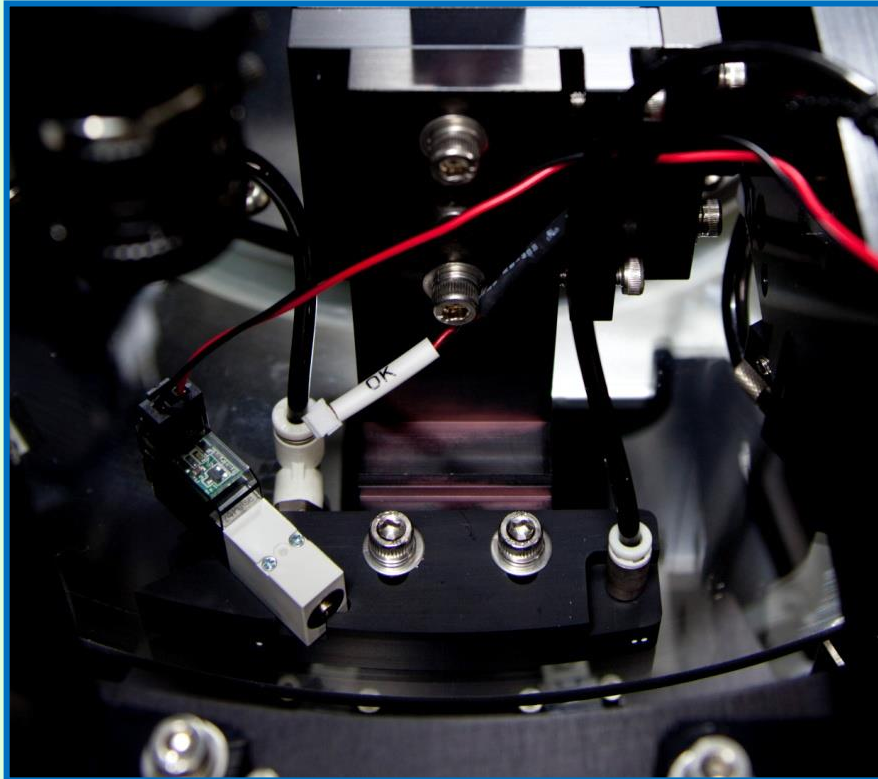
**PC Base
I/O**

- Moving by +/-50% based on the center

**FPGA
I/O**

3 Reliability of Ejection

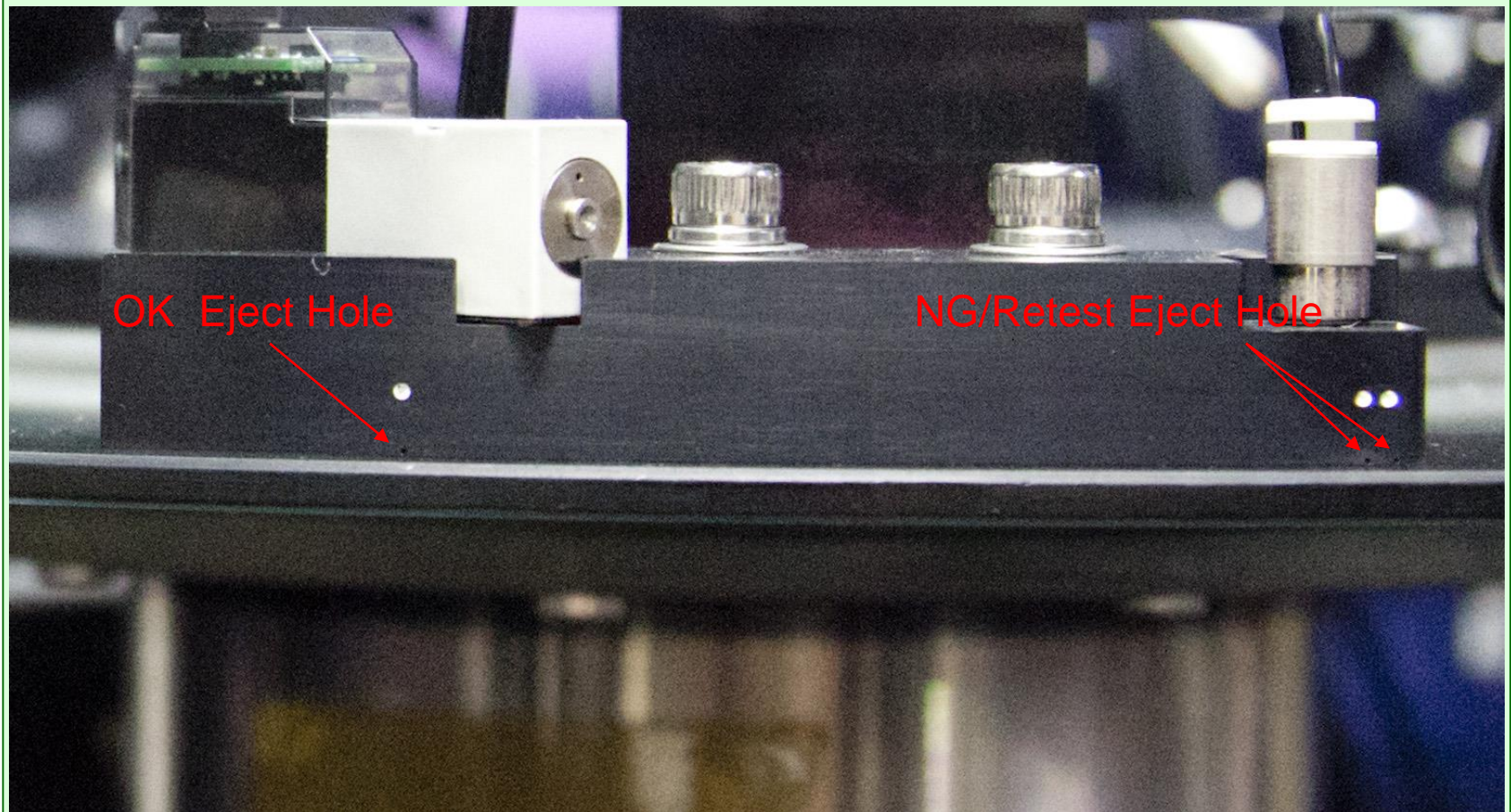
→ Ejection Unit



- The Shortest Design between Nozzle and Actuator
- exact operation of Solenoid Valve
→ Ejection Reliability
- 1 Plate Eject Module (OK, NG Nozzle)

3 Reliability of Ejection

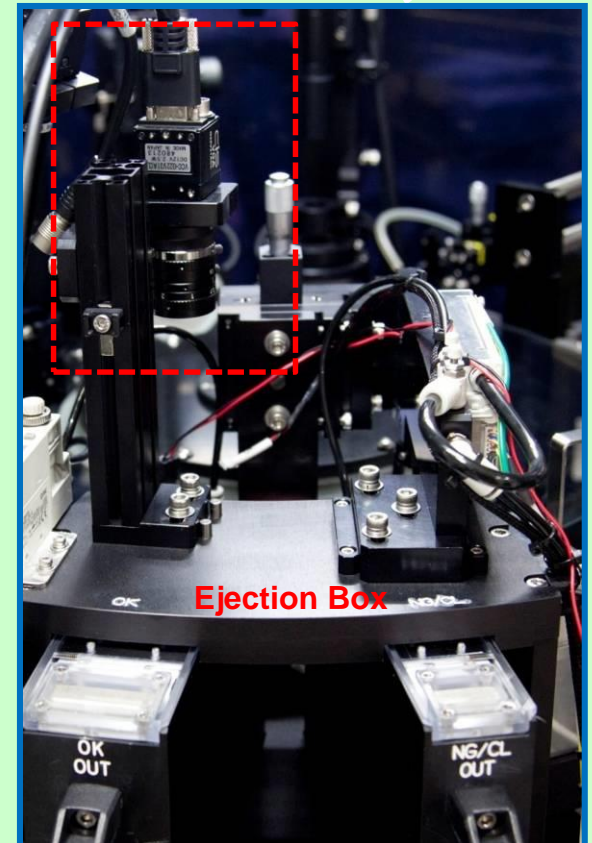
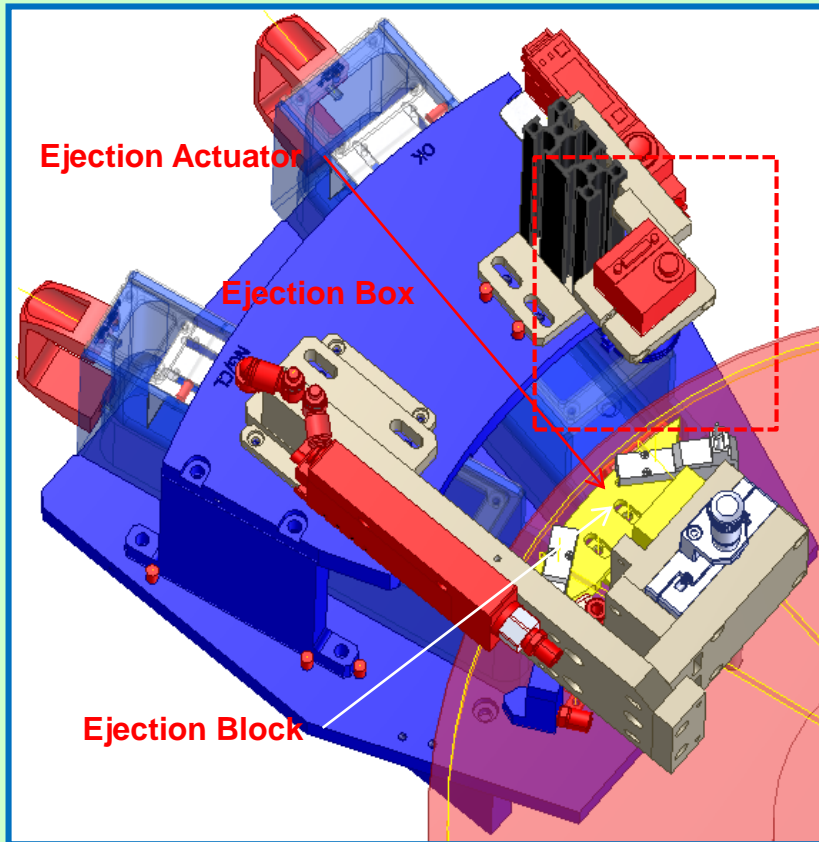
→ Ejection Unit



3 Reliability of Ejection

➔ Ejection Vision Module

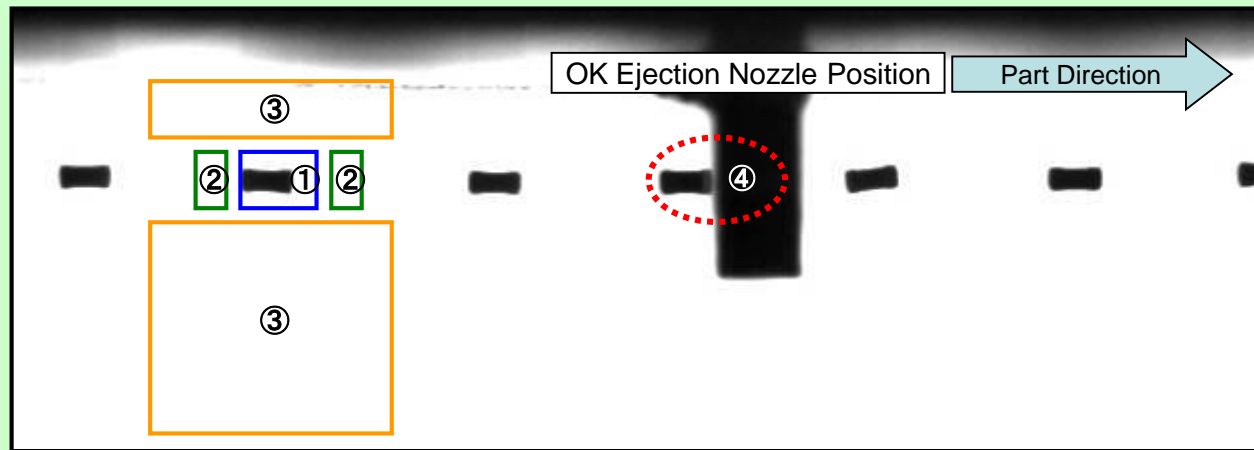
Optional



3 Reliability of Ejection

→ Ejection Vision Module

Optional



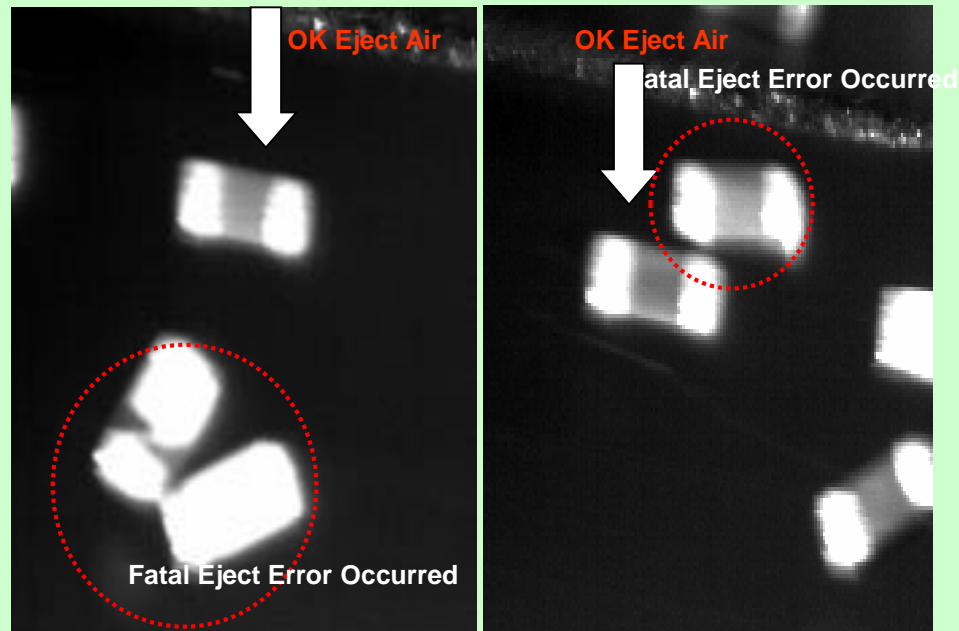
※ Ejection Vision Module Flow

- if (Area #1's Part is OK) Using Ejection Vision Module, set as the part needed to be Checked.
- if (There's something in Area #2) Do not eject Area #1's Part -> It is connected part!!
- if (There's something in Area #3) Do not eject Area #1's Part. -> It is a foreign body !!
- Otherwise, it is okay to eject.

3 Reliability of Ejection

→ Ejection Vision Module

Optional

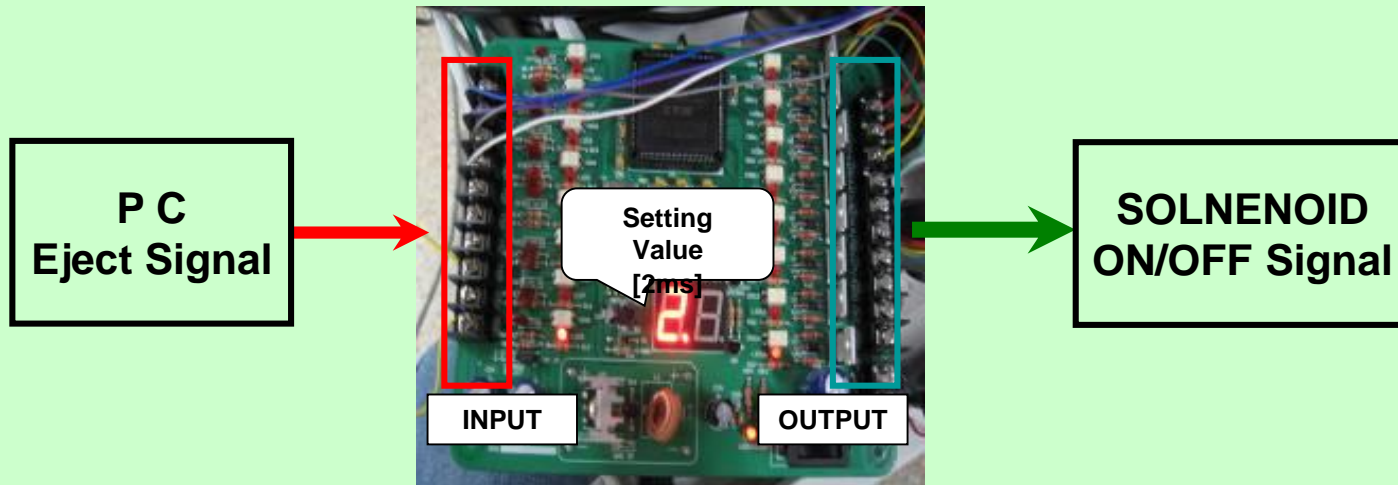


※ Check Items

- ① Part Recognition Area : Rotated Part (less Max 10 degree)
- ② Connected Part : distance between parts 0.8mm
- ③ Upper/Bottom Abnormal Parts or foreign Parts.

3 Reliability of Ejection

→ FPGE Independent Ejection Module

NEW

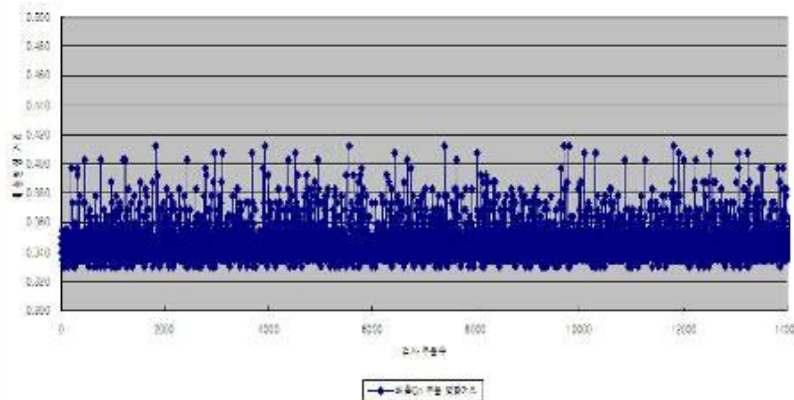
- 1) Previous Method : Control ON/OFF of SOLENOID VALVE Directly from PC.
 - Problem : After turning on SOLENOID VALVE, it is possible to eject parts at delayed time depending on PC load.
- 2) Independent Ejection Module : Enter SOLENOID VALVE ON signal in Independent (from PC) Ejection Module. Independent Ejection Module turns OFF SOLENOID VALVE after designated time (2ms) regardless of PC and PC Load.
 - Advantage : Capable of ejecting parts at the equal amount of time, regardless of PC Load.

3 Reliability of Ejection

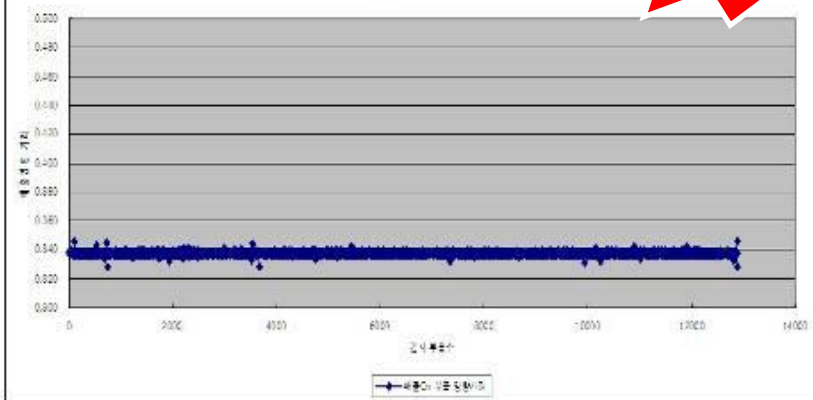
→ Independent Ejection Module

NEW

Before



After



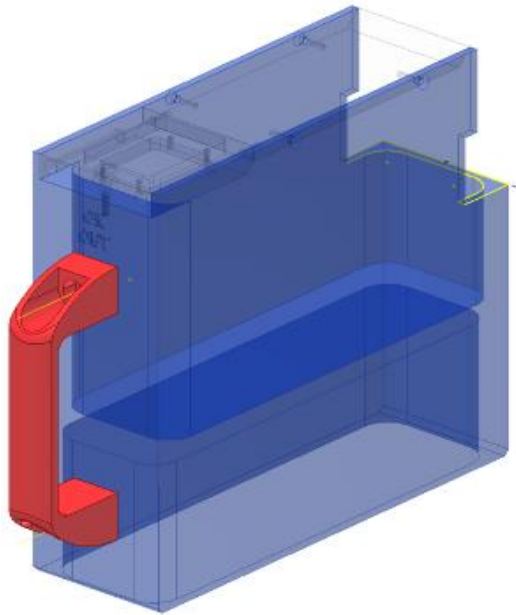
※ Result of Independent Ejection Module Test

- Previous PC Ejection Method : The range of the air affecting on parts 0.33mm~0.42mm
- Independent Ejection Module : The range of the air affecting on parts 0.33mm~0.35mm
- Using Independent Ejection Module, which has a smaller range of air affecting on parts, it is possible to eject parts from a machine in a stable condition.

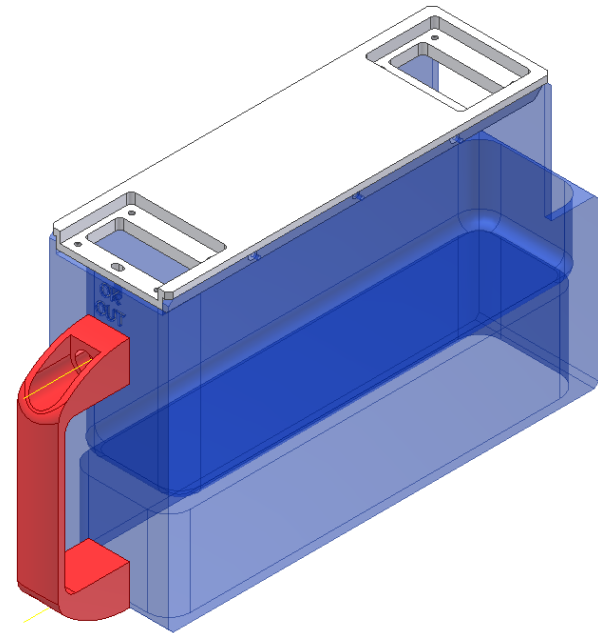
3 Reliability of Ejection

→ Ejection BOX

Before



After



IV Features of **WVS-N8 Series**

4 Ability of Massproduction

- Auto LED Illumination Teaching
- Auto Parameter Teaching (History)
- Hinge for exchange of Glass Table
- X-Y-Z Stage for Feeder
- Ejection Actuator Monitoring
- Clear Ejection / IONIZE

4 Ability of Massproduction

→ Auto LED Illumination Teaching

Area division	Target Value	Controlled LED Color [RED:Body, Blue:Terminal]
 <p>- Standard Value (Term'l: 240, Body: 130)</p>		

● Automatic Illumination Concept

- The function to set up LED lighting, recognize the value of the average intensity of the LOT based terminal / ceramic_body automatically.

● Automatic Illumination Merit

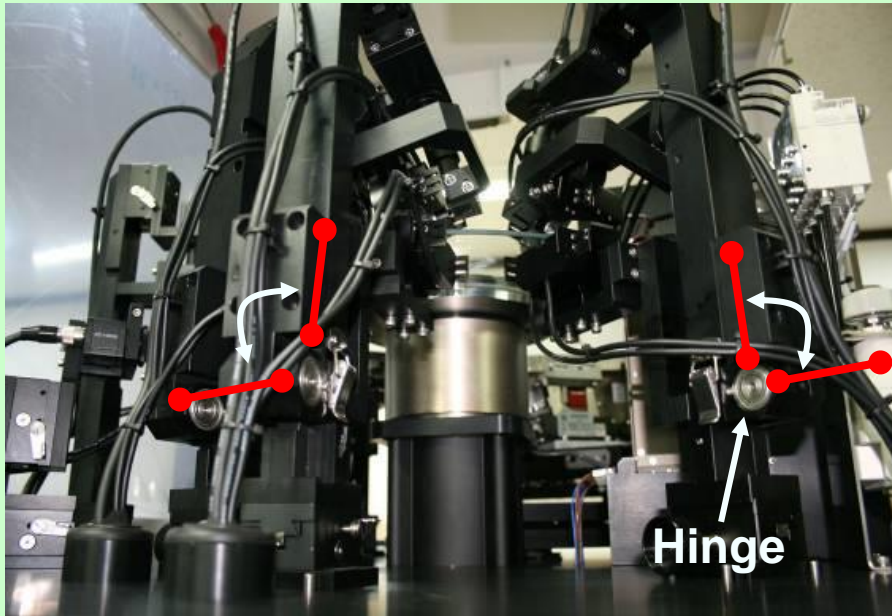
- Acquired similarly image data from a camera, improved good yield rate and inspection ability, and led lights set up jog improving easily.

● Automatic Illumination Method

- AutoLED button Click ▶ Input target value on terminal/body (include tolerance) ▶ Automatic illumination start/stop

4 Ability of MassProduction

→ Hinge for exchange of Glass Table

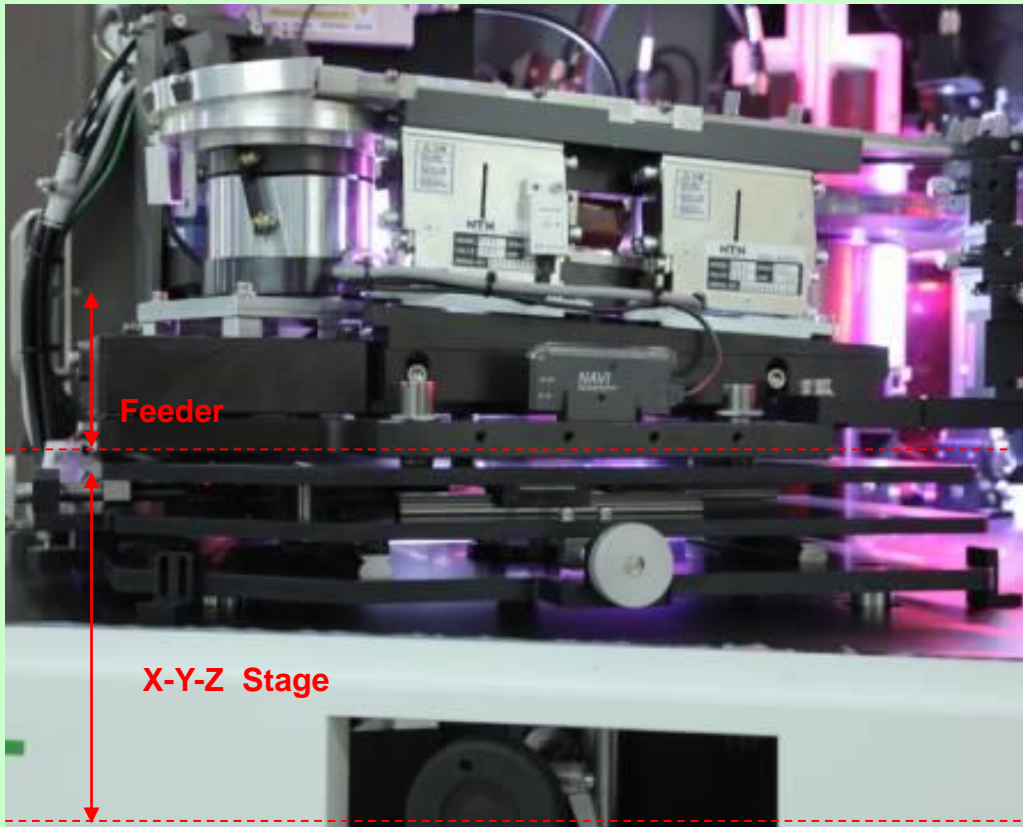


● Set-up the Hinge on Bracket for convenient replacement of Glass Table

→ User friendly // → Better Productivity

4 Ability of MassProduction

→ X-Y-Z Stage for Feeder



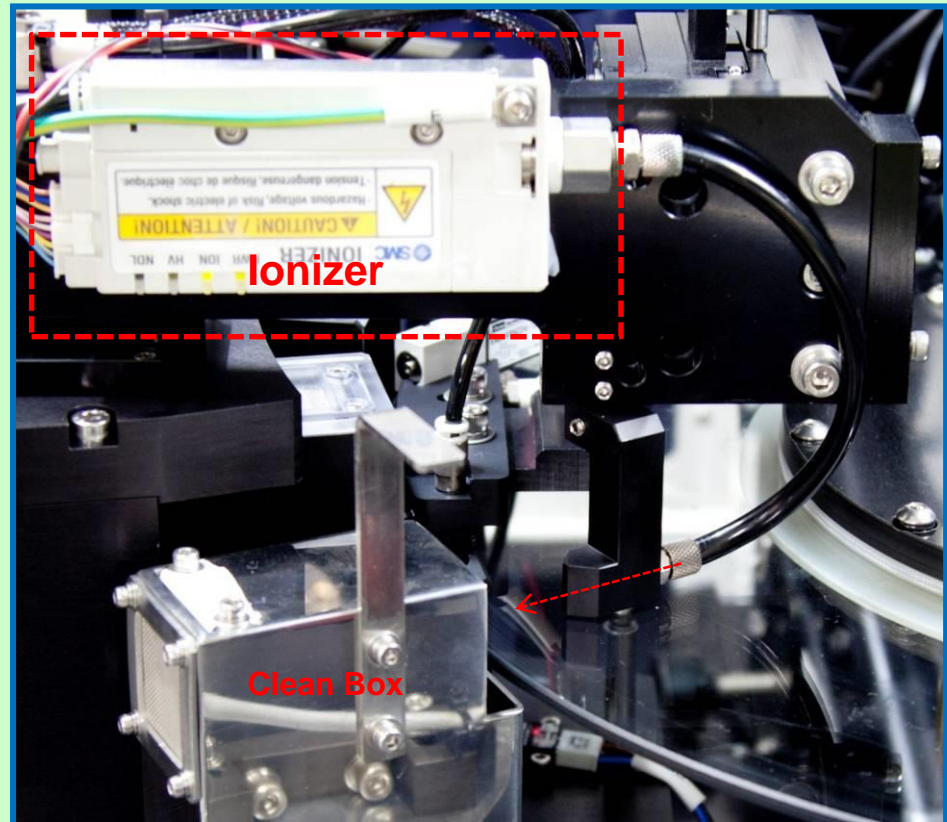
- for Slightly Setting of Feeder

4 Ability of MassProduction





























→ Clear Ejection / IONIZE

● IONIZER

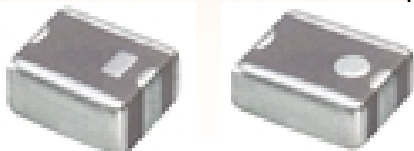


























- Control the occurrence of the static electricity in parts and Glass Table.
- When failing ejecting parts, eject them by force.
- When forced ejection is not occurred, Glass Table is damaged.




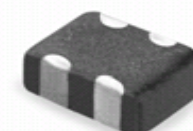












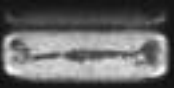













V The type of chip that can be inspected in WVS-N8 Series

Item	MLCC / BEAD / VARISTOR	INDUCTOR	EMI-LC4 ARRAY	T-PLEXER
Picture				
Size	0402 ~ 4532	0603 ~ 1608	1608 ~ 2012	3225
Bottom				
Top				
Front				
Rear				
T1				
T2				

V The type of chip that can be inspected in WVS-N8 Series

Item	L1/ B1 / A2 LC-FILTER	BALANCE-FILTER	K1 LC-FILTER	K3 LC-FILTER
Picture				
Size	2520 ~ 3225	2520	1608	1608
Bottom				
Top				
Front				
Rear				
T1				
T2				

V The type of chip that can be inspected in WVS-N8 Series

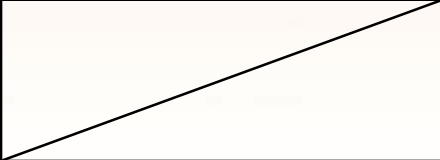









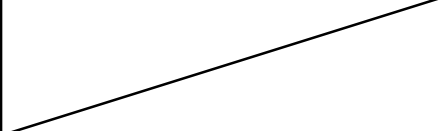
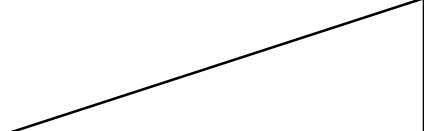
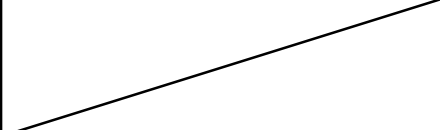
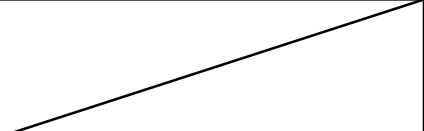
Item	EMI-FILTER	CMF	LICC	BALUN
Picture				
Size	1608 ~ 2012	2012 ~ 3225	1608	1608 ~ 2012
Bottom				
Top				
Front				
Rear				
T1				
T2				



V The type of chip that can be inspected in WVS-N8 Series

Item	SERGE	R-VARISTOR	GREEN CHIP	RESONATOR
Picture				
Size	1608	1608 ~ 2012	2012~3225	2012 ~ 2520
Bottom				
Top				
Front				
Rear				
T1				
T2				

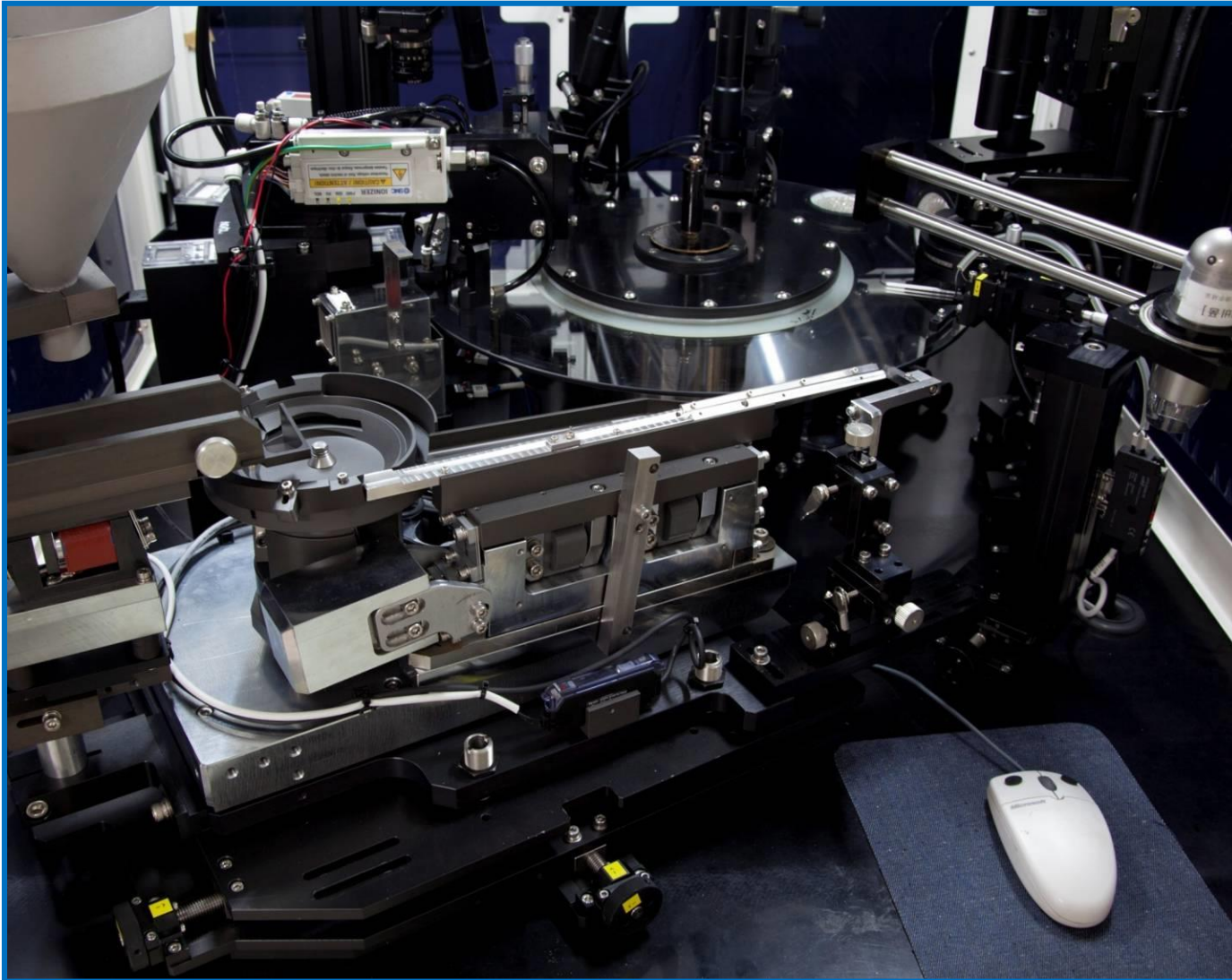
V The type of chip that can be inspected in WVS-N8 Series

Item	CHIP ANTENNA	CHIP LED
Picture		
Size	0602~1103	1608
Bottom		
Top		
Front		
Rear		
T1		
T2		

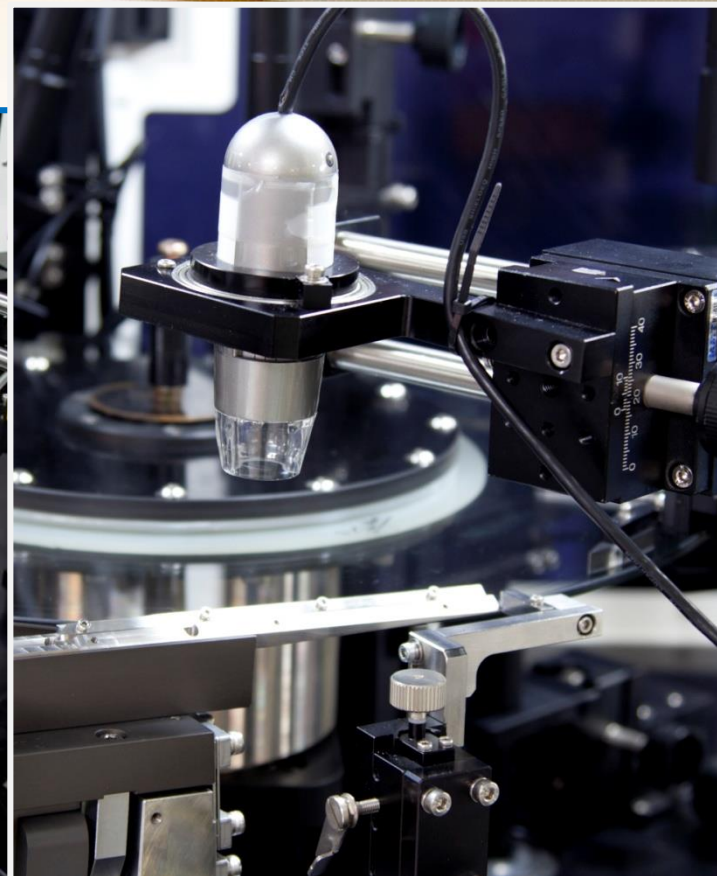
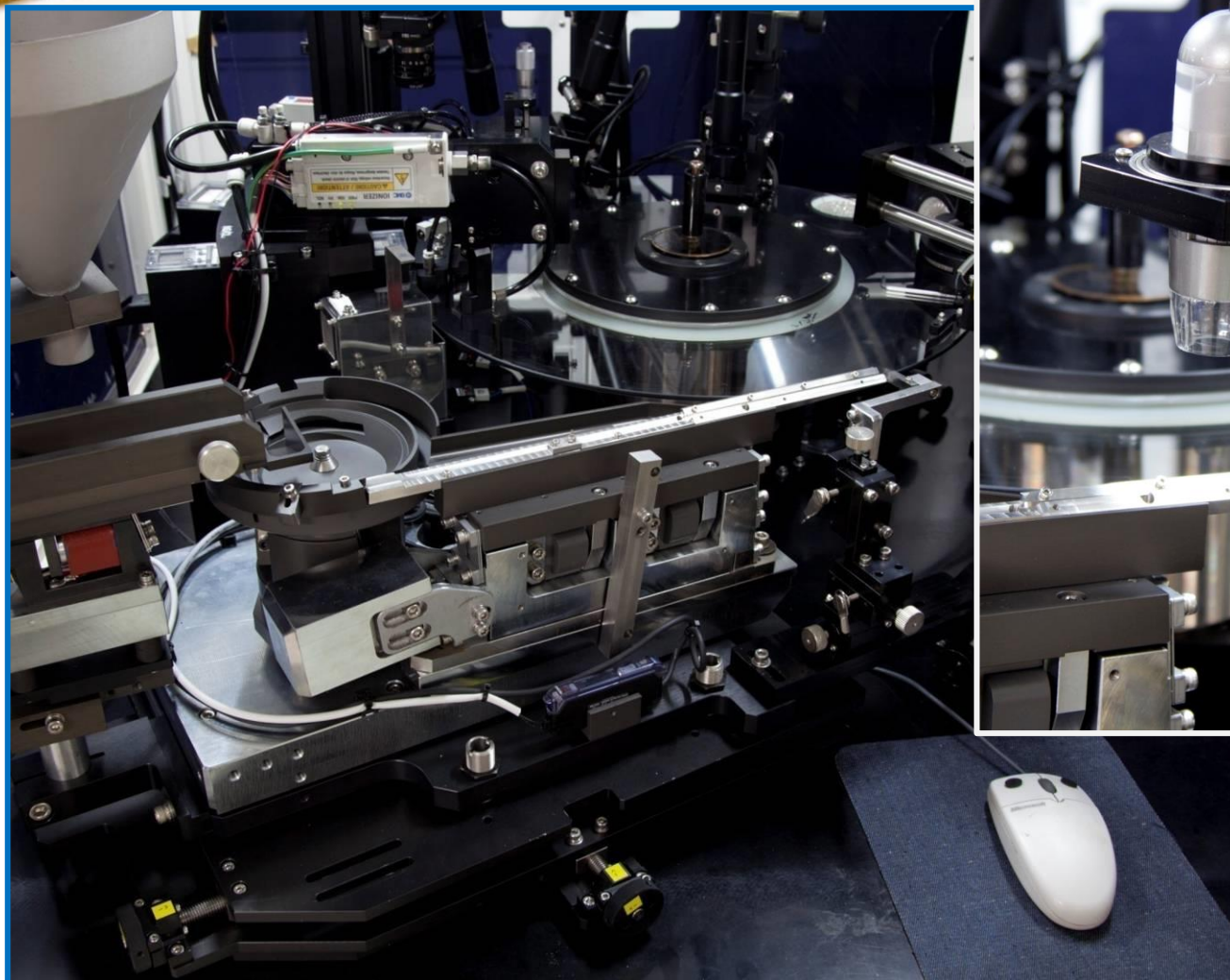
VI Photos of WVS-N8 Series



VI Photos of WVS-N8 Series



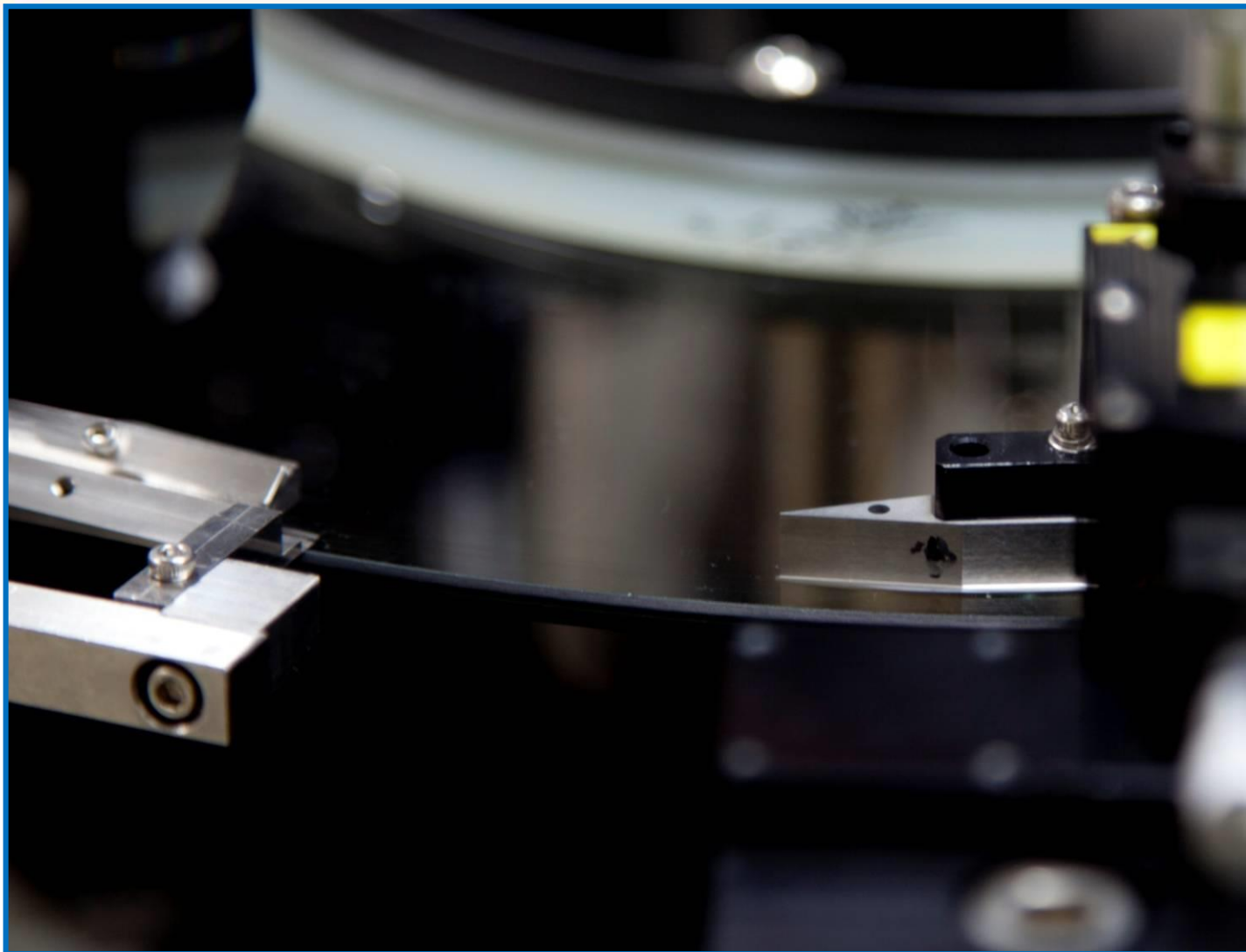
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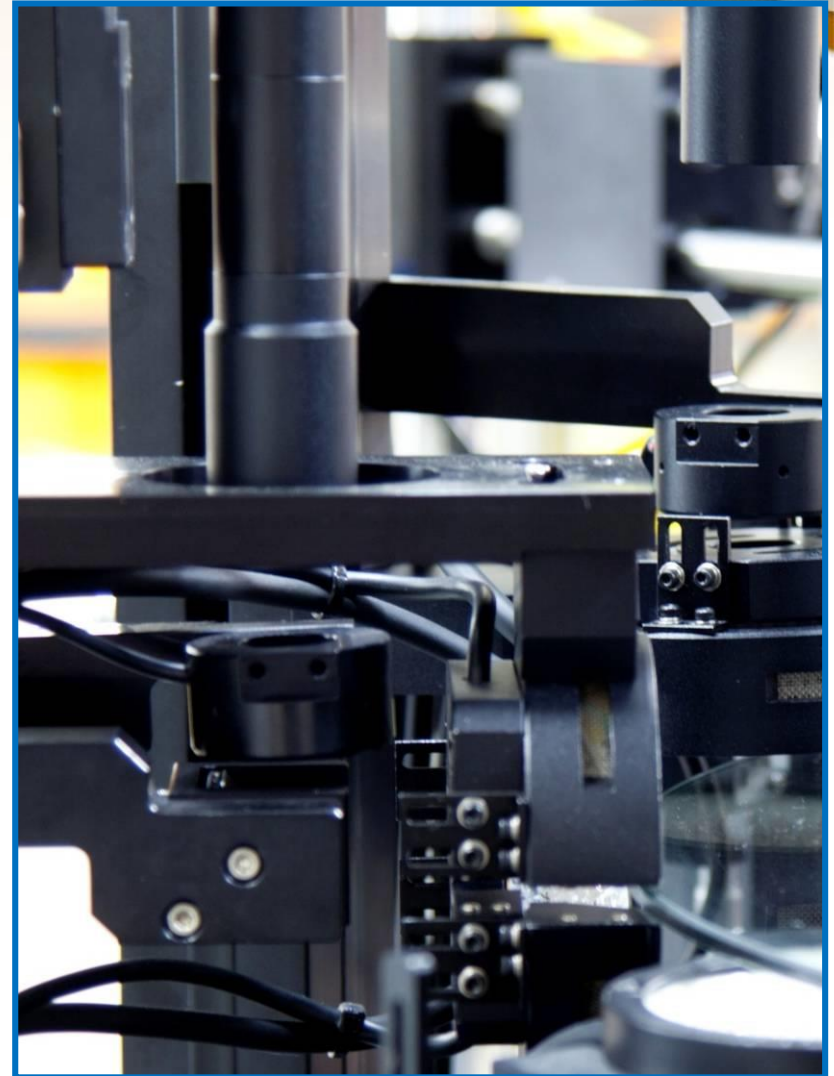
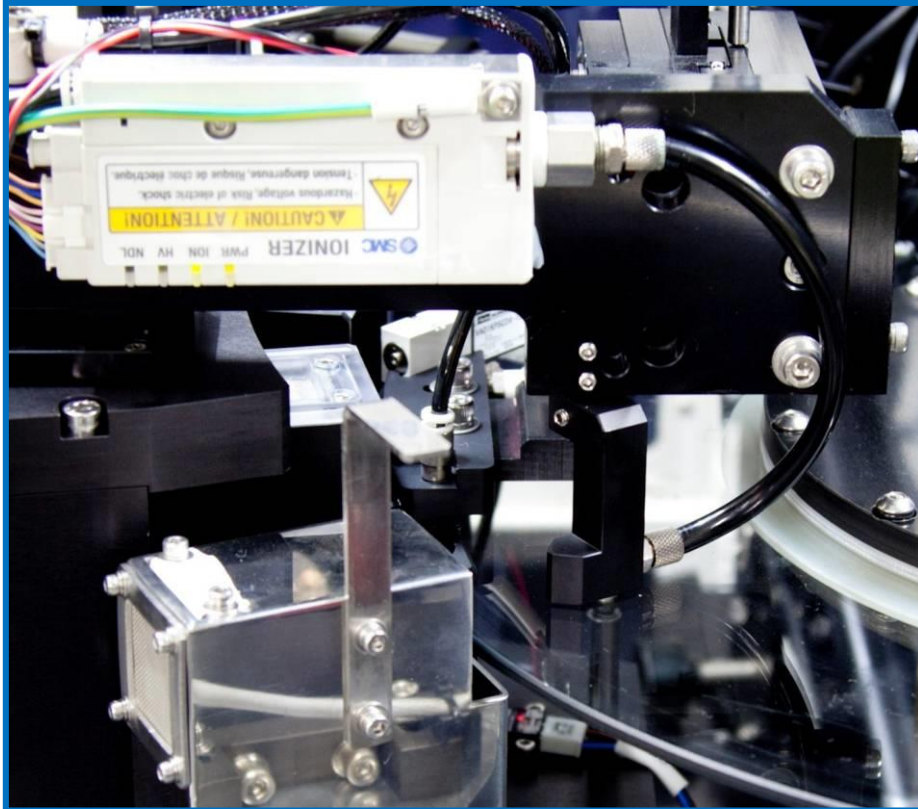
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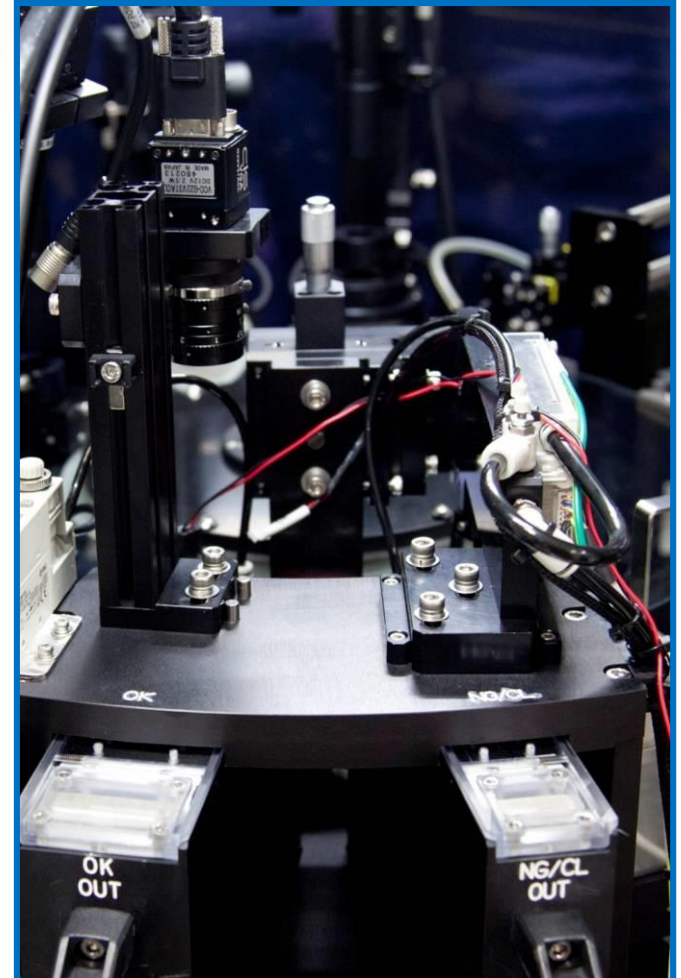
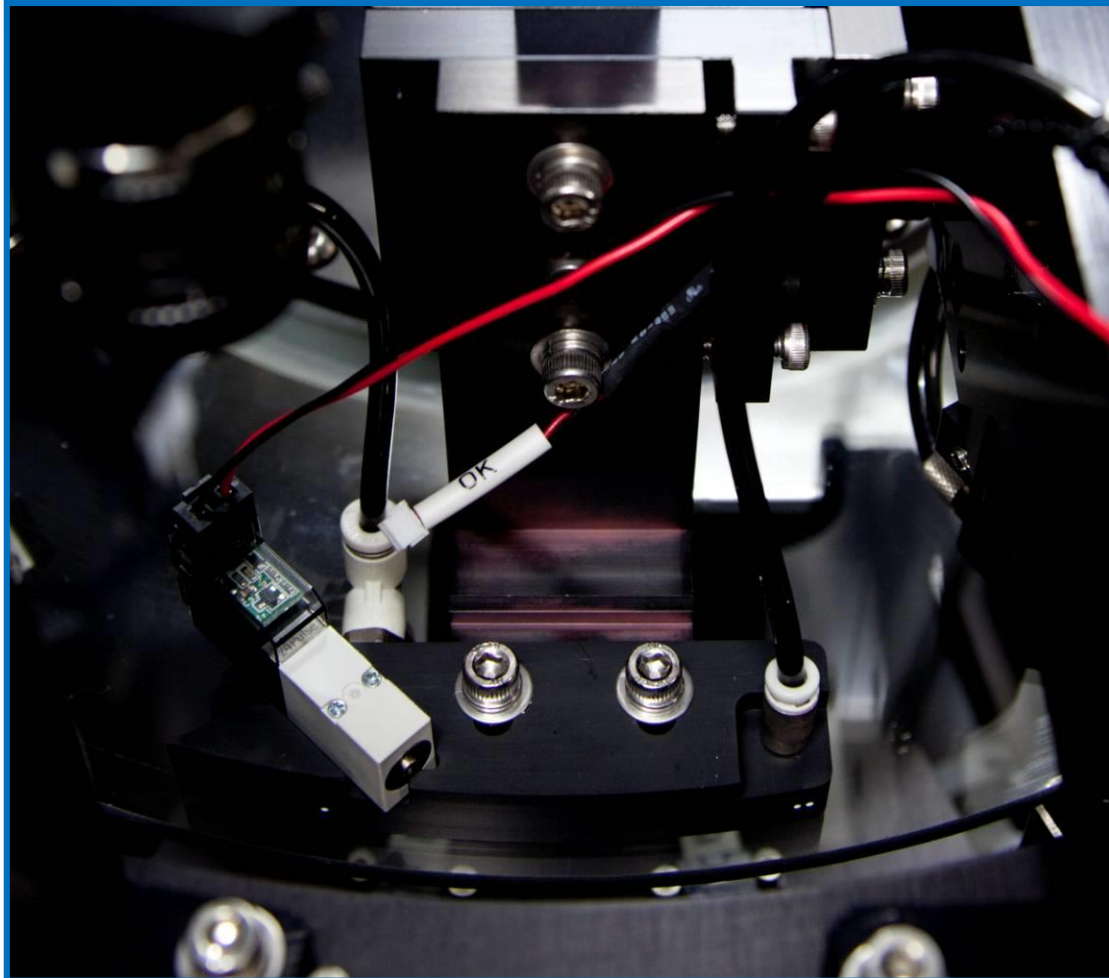
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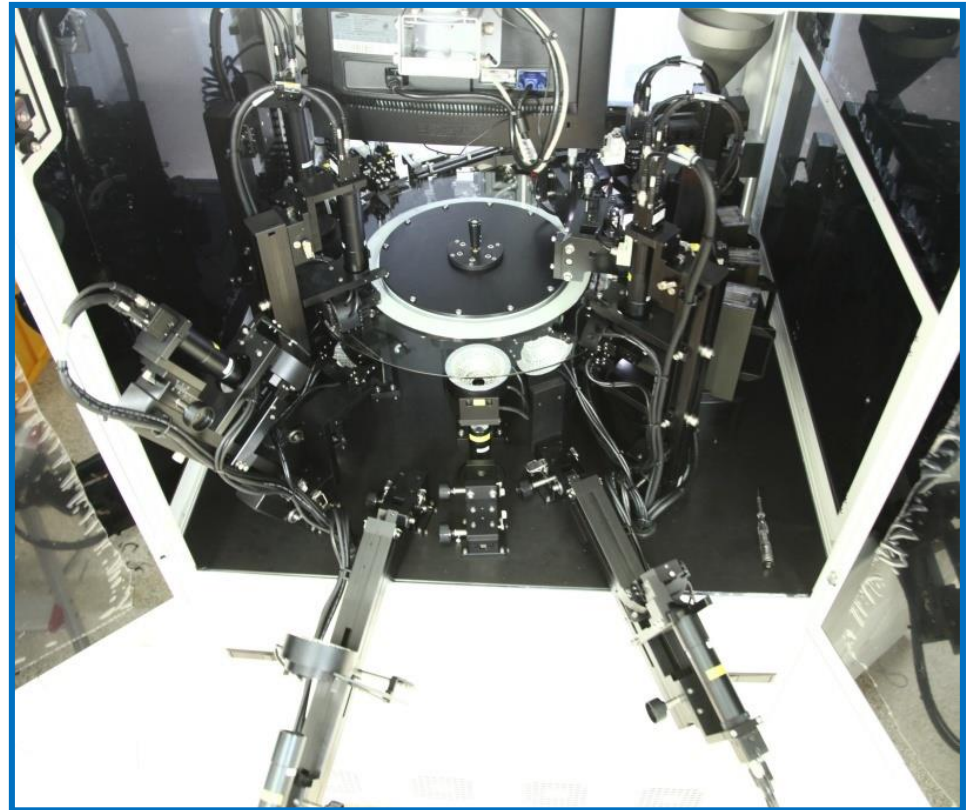
VI Photos of WVS-N8 Series



VI Photos of WVS-N8 Series



VI Photos of WVS-N8 Series



VI Photos of WVS-N8 Series



A decorative graphic on the left side of the slide. It features a curved line with two orange spheres at the top and two white spheres at the bottom. Below the line is a compass rose with a needle pointing towards the top-left. The background has a grid pattern.

THANK YOU~