

# Y-S168CE PCB Depaneling System

2018 January

# Y-S168CE PCB Depaneling system

---



# Feature Introduction

## Graphical User Interface

The user interface is based on the Windows GUI operating system and is easy to use. A CCD camera is also used to display a 10X image of the PCB to improve training precision.

## Axial Motor

Uses a high precision/response AC servo motor and modular actuator.

## Spindle Motor

High-speed spindle motor to reduce mechanical stress during cutting (58,000 rpm).

## Dust Suction Duct

Design from the Principle of Fluid Dynamics. Collecting dust and fragments effectively in downward direction.

## Work Exchanger

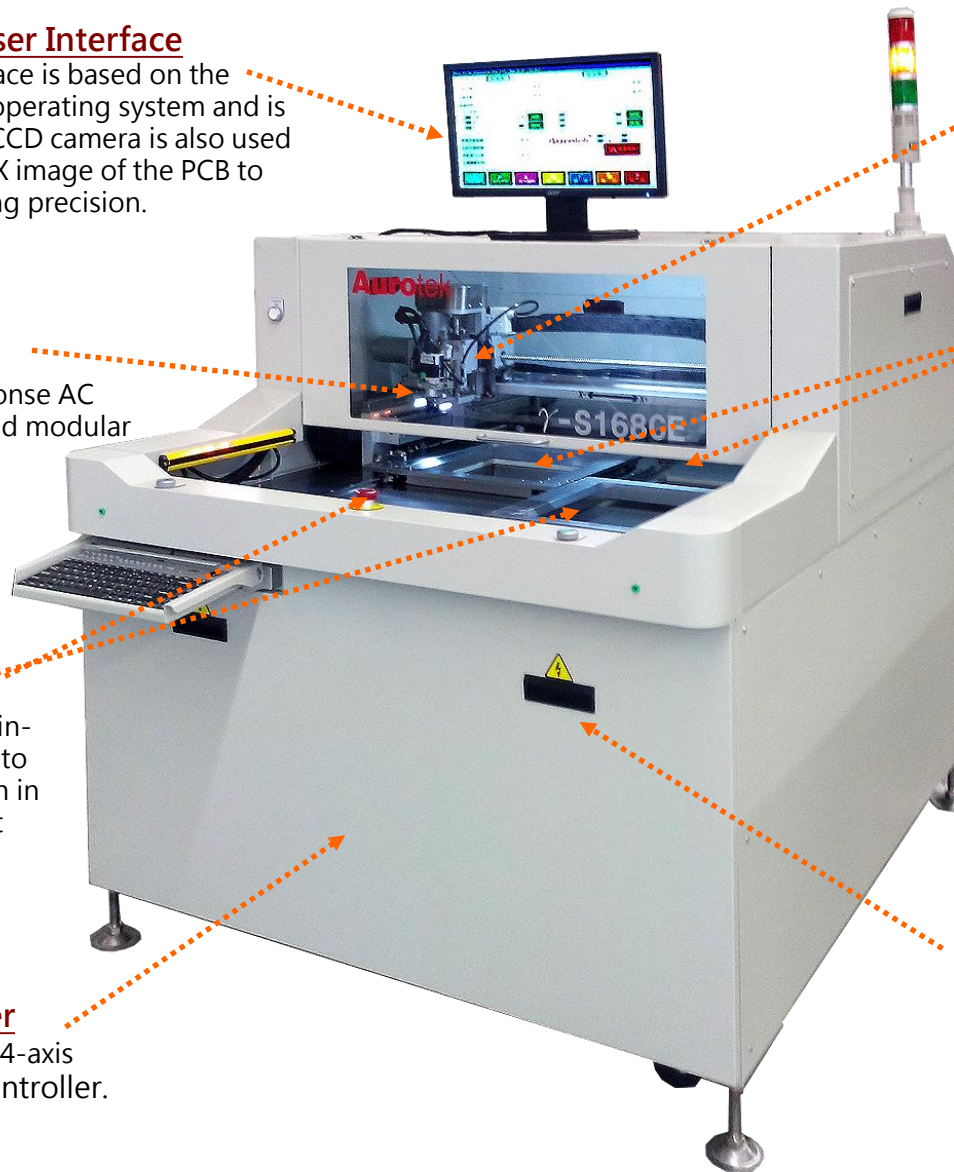
This work exchanger provides an alternative in-and-out working space to limit the idle time, which in turn reaches the utmost output value.

## Controller

PC-based 4-axis motion controller.

## Safety Device

Uses block-out infra-red sensors to avoid controller case being opened when processing.



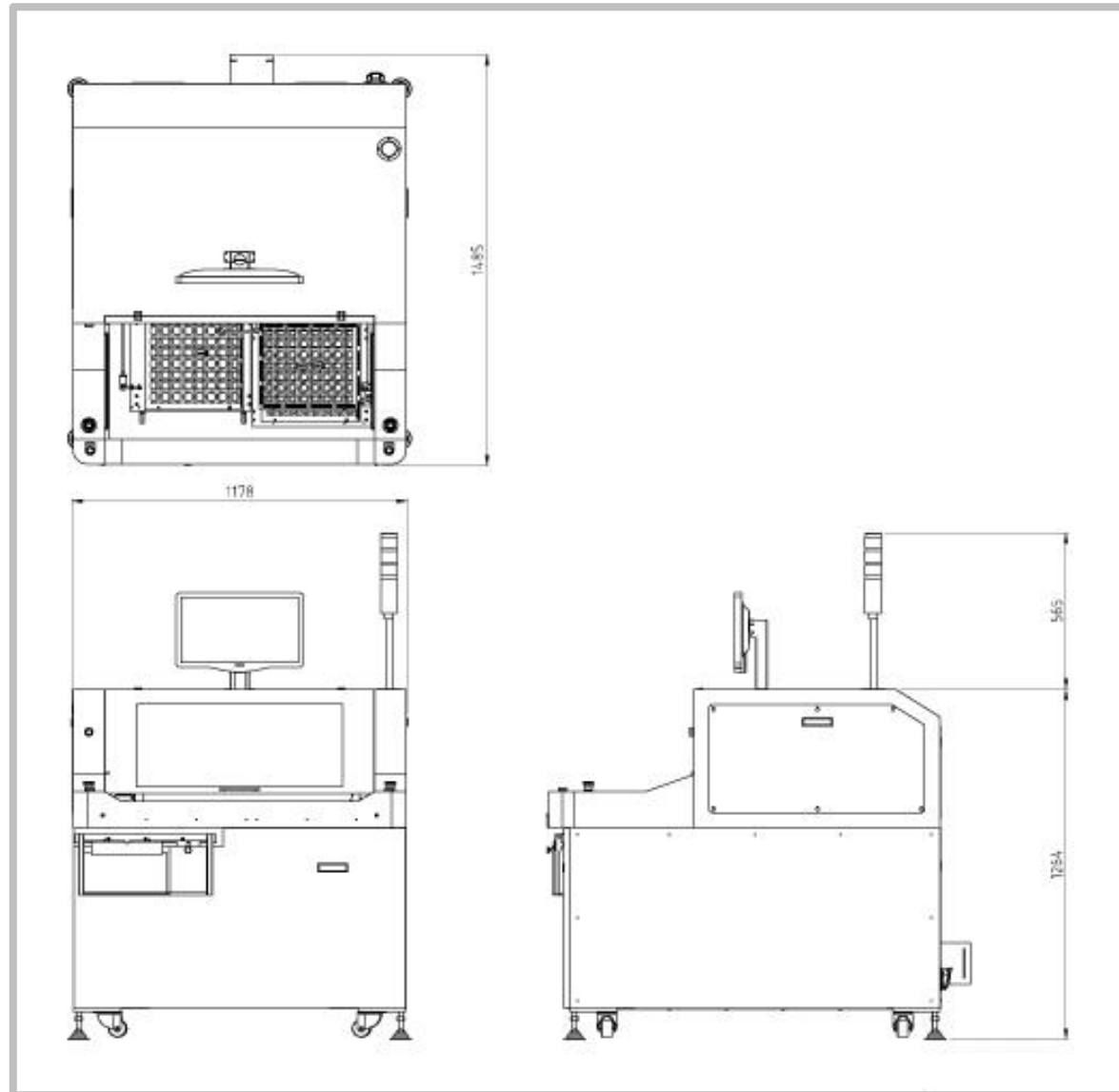
# Specification

Setting Fixture	2 stations
Working Area	X:330mm, Y:330mm, Z:60mm
Cutting Area	Max : X:330mm, Y:330mm
PCB Component Height	Top : 15mm Bottom : 35mm (with universal jig) 、 45mm (with specific jig)
PCB Thickness	0.5 to 5.0 mm
Router Bit Diameter	0.8 ~ 2.0 mm (Optional for more than 2.0mm)
Precision of Cutting	$\pm 10 \mu\text{m}$
Positioning Accuracy	$\pm 10 \mu\text{m}$
Positioning Repeatability	$\pm 20 \mu\text{m}$
Number of Axis in use	3 Axes (X, Y, Z).
Driving Speed (Max)	X, Y : 700mm/sec, Z: 500mm/sec
Cutting Speed (Max)	X, Y, Z: 100mm/sec
Spindle Motor	High speed variable frequency motor 265W (Max.58,000rpm)
Bit Change	Manual
Cutting Ability	Linear, Circular, U-curve, Arc, L-curve
Motor of Axis	3 Axes (200W AC Servo motors)

# Specification

Bit Shift Count	1~9 (Availability depends on PCB thickness)
Route Planning	Direct coordinate input or manual guiding with × 10 CCD camera
Safety Area Sensor	Optional
Bit Break Detection	Optional
Program Storage	HDD
Program Backup	USB
Operating System	Windows 7
Man-Machine Interface	LCD Monitor + Keyboard + Mouse
PCB Loading/Unloading	Manual
Power Supply	3 Phase AC220V±3% 50Hz/60Hz, 2.5 kw
Air	0.5Mpa
Dimensions	(W)1178mm × (D)1485mm × (H)1264mm + 565mm Signal Light
Weight	approx. 390 Kg
Base Height	900mm    Max : 930mm
Vacuum Cleaner	YSF-V553 3HP 2.2kw

# Specification



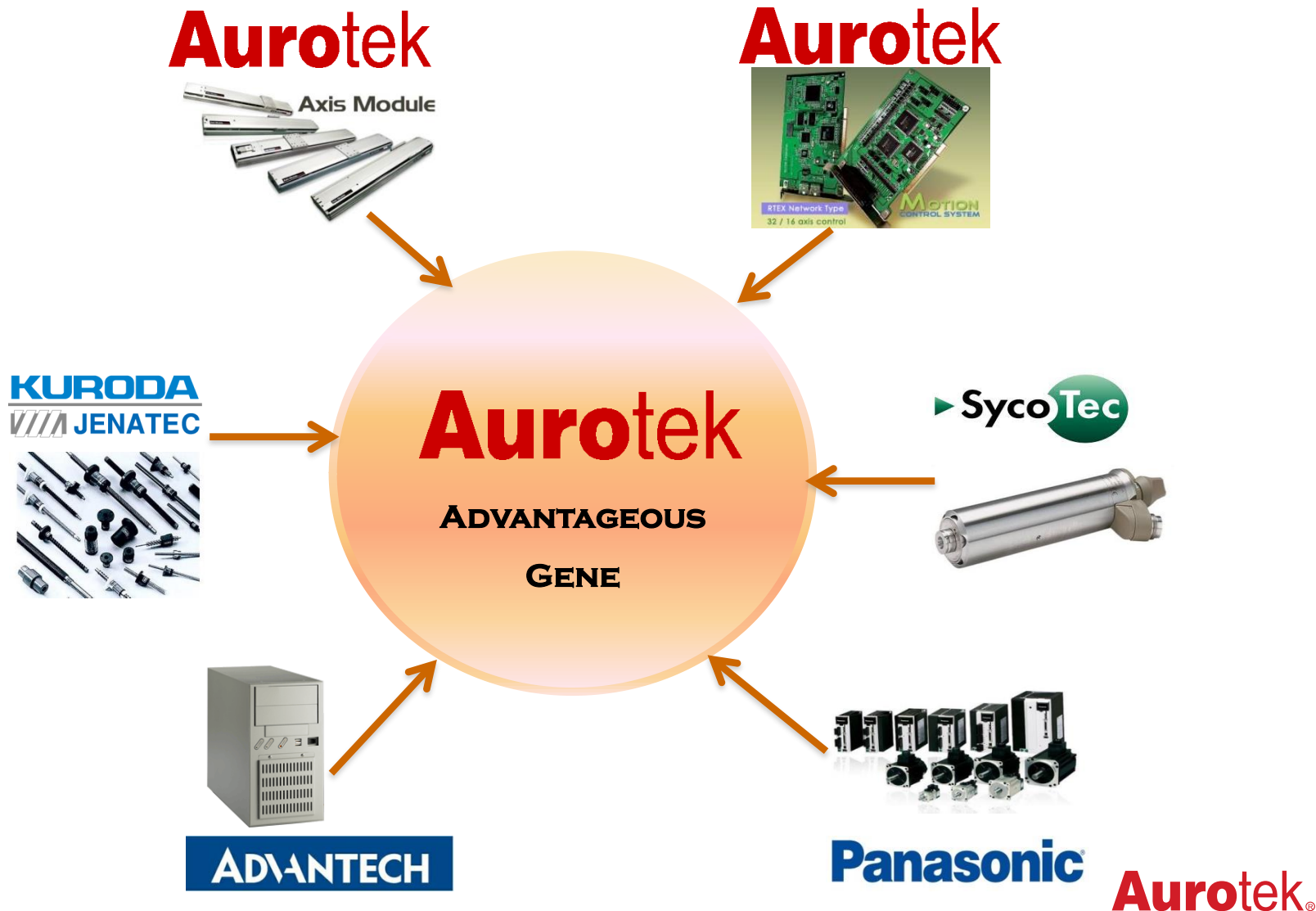
# Advantages & Benefits

---

- 
- **High Speed & Precision**
  - **Customized Design**
  - **24Hr Service & Support Website**
  - **Universal Jig & Customizable Jig**
  - **Cost-Effective**
  - **High C/P Values**
  - **Warranty starts from at least 1 year**

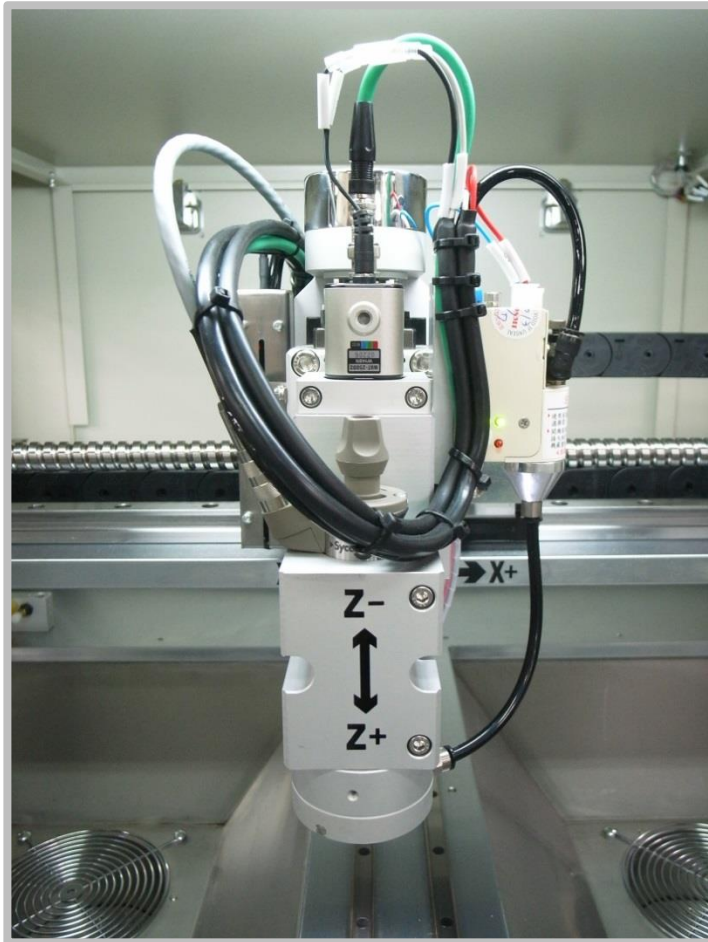


# Advantageous Genes





# Product Overview



## Strong inner / outer mechanical structure

Using Aurotek own brand high precision actuator module.

X, Y, Z are driven by individual Panasonic servo motor.

**Panasonic**

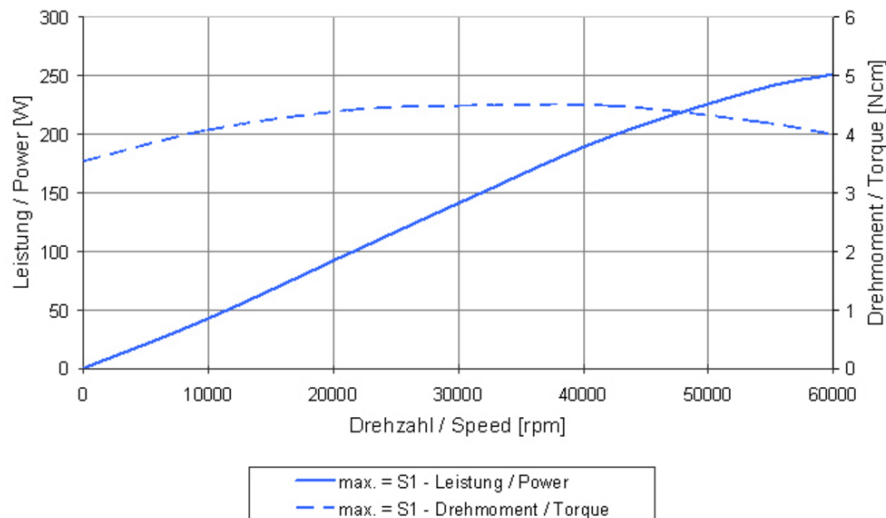
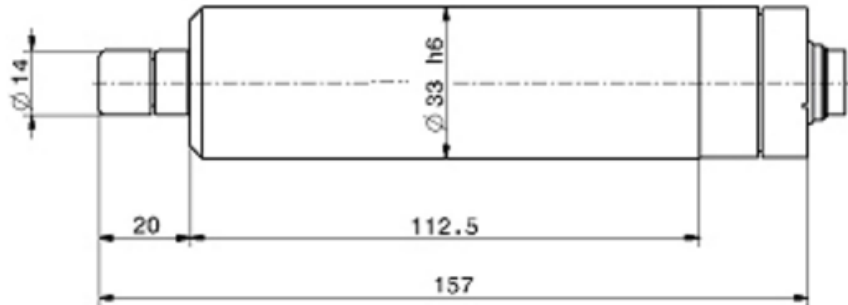



**Aurotek**<sup>®</sup>

Copyright © 2017 Aurotek Corporation

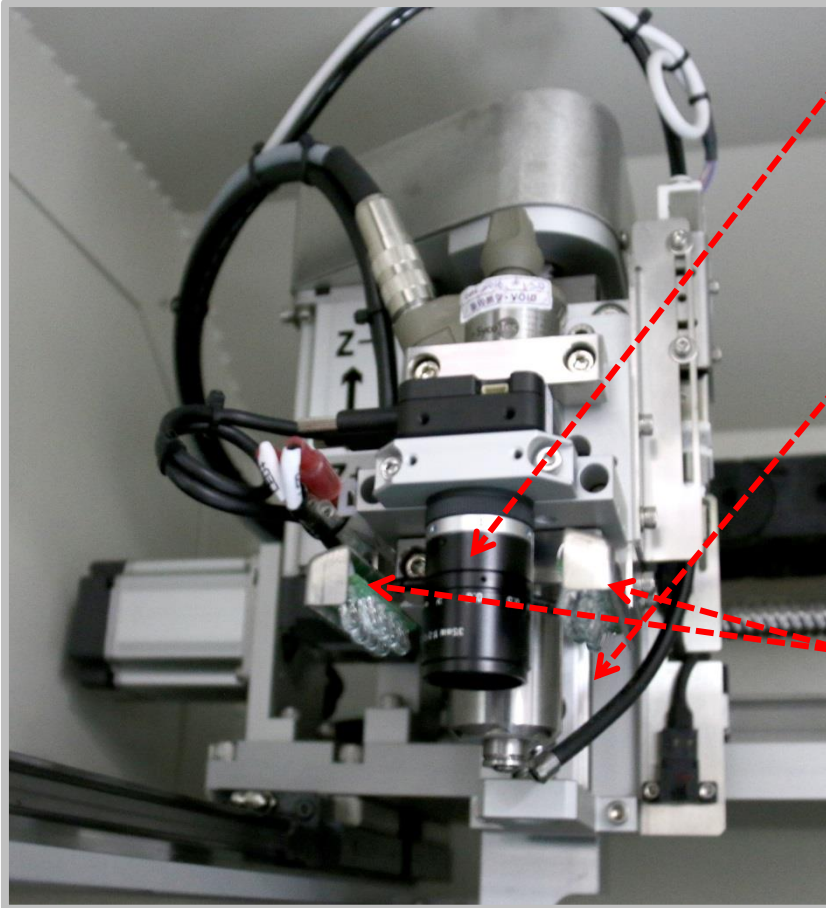
# Spindle & Motor

## SycoTec Spindle 4026



Motor system: 3 phase asynchronous motor  
Speed range: 5,000~60,000 rpm  
Voltage: 30V  
Current: max. 8A  
Torque: 4.5 Ncm  
Frequency: 83~1,000 Hz  
Power: 265W  
Weight: 700g  
Bearing system: 2x Hybrid, 1 x Steel, lifetime lubricant  
Protection category: IP 20  
Working position:   
Load direction: axial + radial  
Run-out (taper):  $\leq 1.5 \mu\text{m}$   
Cooling system: Self-ventilation fan  
Cooling via clamping bracket  
Housing material: Stainless steel

# Product Overview



## CCD camera

CCD Supports coordinate setting. It checks fiducial marks and simulates cutting routes before actual cutting.

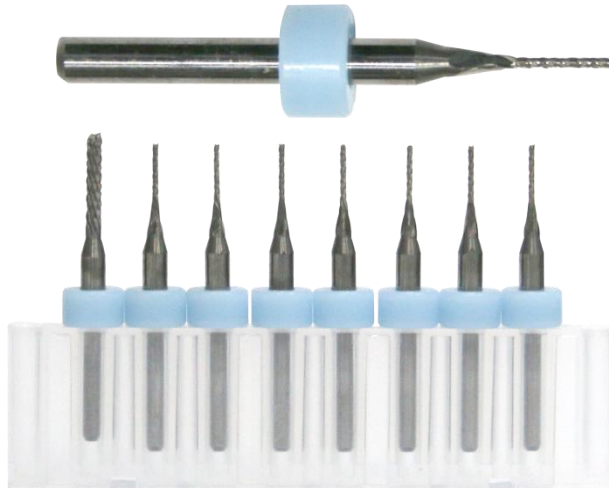
## Ionizer

Ionizer focuses on cutting point during cutting process. It reduces electrostatic discharge effectively.

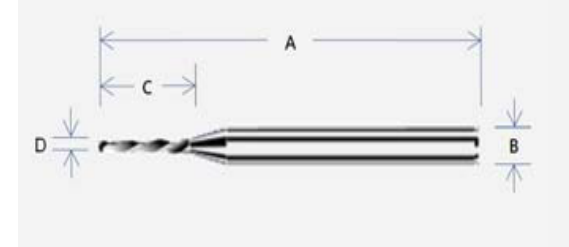
## LED lights

LED lights support CCD Camera when setting up cutting program, route simulation and fiducial marks alignment.

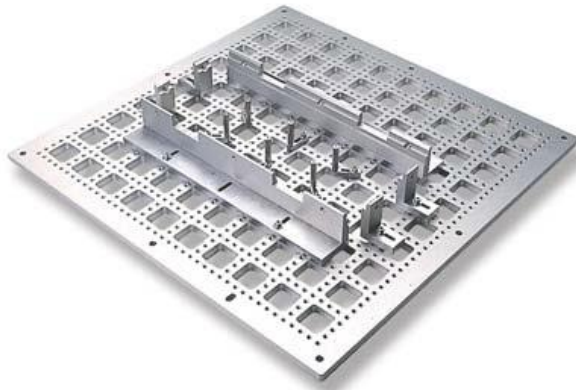
# Routing Bit & Specific/Universal Jig



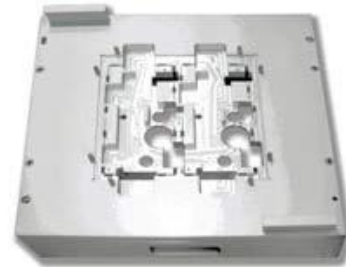
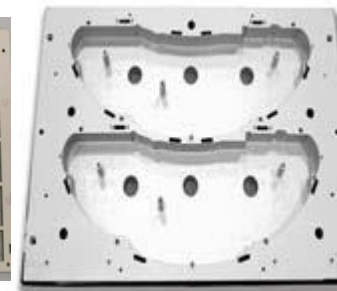
**Bit Size**  
Ø 1 ~ Ø2 mm



LCF; Down Cut; Carbide end mills  
Overall Length (A):  $38.2 \pm 0.30$  mm  
Shank Diameter (B): 3.175 mm  
Cutting Length (C):  $6 \pm 0.50$  mm  
Cutting Diameter (D): 1.00 1.20 1.50 1.60 2.00 mm



**Universal Jig**  
Supports variable PCB cutting



**Specific Jig**  
provide a more stable and  
accurate routing environment

# Dust Collector



## YSF Series Vacuum Cleaner

YSF vacuum cleaner is designed for PCB Separator Series to collect the dust & scrap generated by router cutting. High horse power motor & high efficiency fan ensure the suction with excellent efficiency.

Type	YSF-V553
Dimensions (WxDxH)	665x635x1610mm
Weight	195 kg
Power Supply	3 phase 50Hz / 60Hz 220V
	2.2 kw
Motor Power	3 HP
Inlet Wind Speed	26 m/sec
Inlet Wind Capacity	28 m <sup>3</sup> /min
Inlet Wind Pressure	300 mm-Ag
Inlet Diameter	150mm
Outlet Diameter	203mm



# Superb Product Features

---



## 1. Dual Sliding Working Stations

This provides an alternatively in-and-out working space to limit idle time, which in turn reaches the utmost output value.

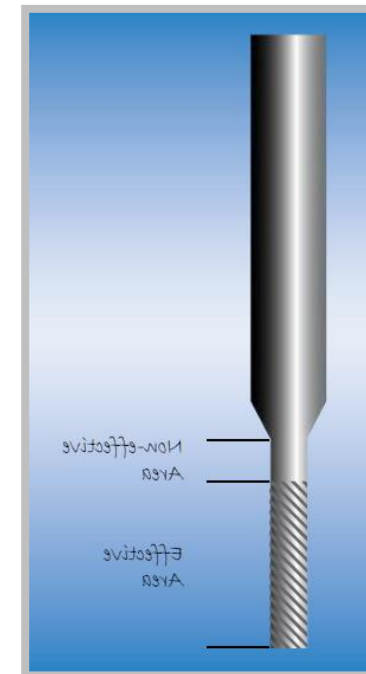
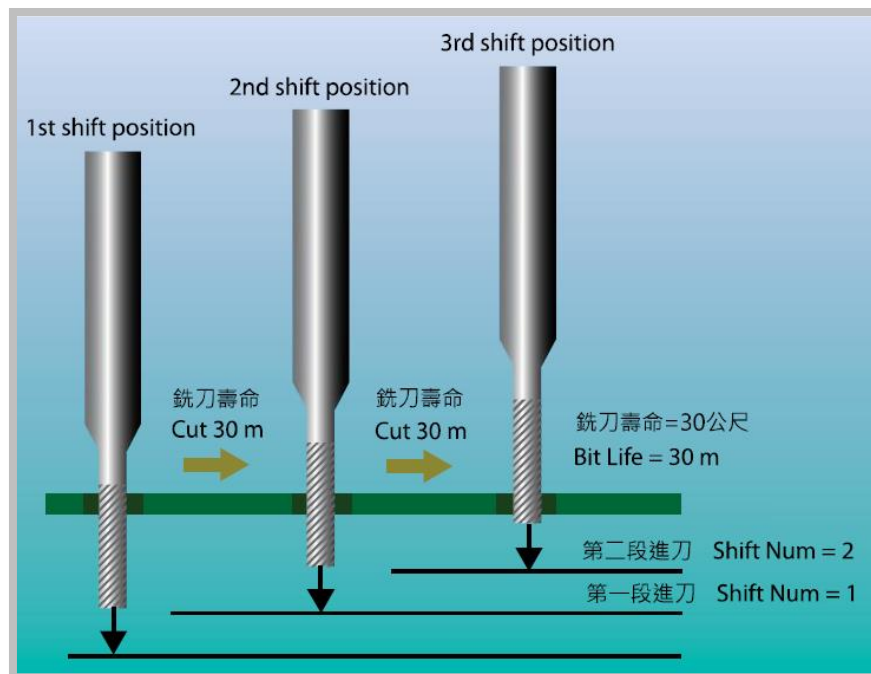


# Superb Product Features

## 2. Maximum 9 Routing Bit Sectioning

User may set a designated distance, and have the routing bit shift down in order to make a new section of routing bit to cut boards. It multiplies the lifespan of the routing bit.

Note: The viable number of section depends on PCB thickness and bit length.

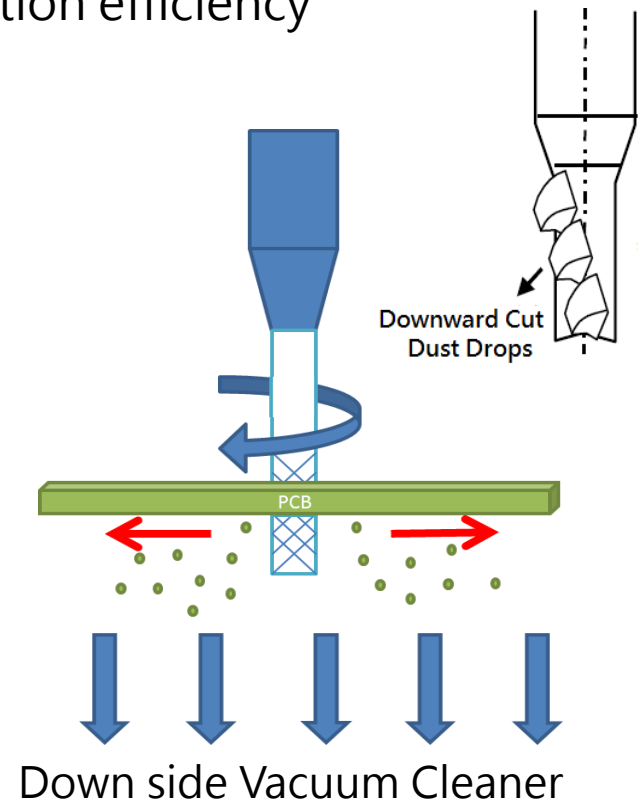




# Superb Product Features

## 3. Dust Collection Funnel Duct

The vacuum suction is just under bit cutting position, which focuses on the actual cutting area. Together with the use of ionizer that remove ESD during bit cutting and the left-turn bit design which downwards cuts, these enhance dust collection efficiency significantly.

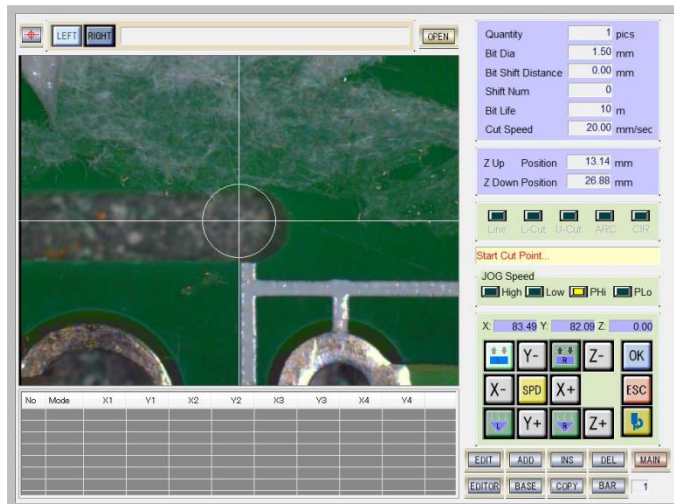


# Superb Product Features



## 4. Graphical User Interface

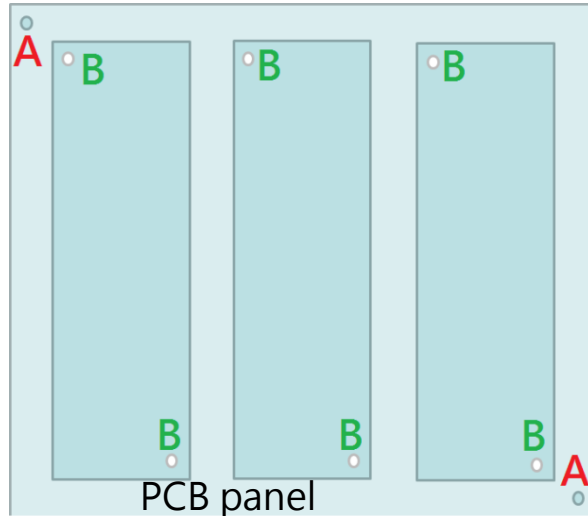
Window 7 IPC with CCD X10 zoom-in image makes programming easier & increases the accuracy of cutting point setting.



## 5. CCD Image Pathway Simulation

CCD image can check & simulate the path of routing to reduce unnecessary mistakes before actual cutting.

# Superb Product Features

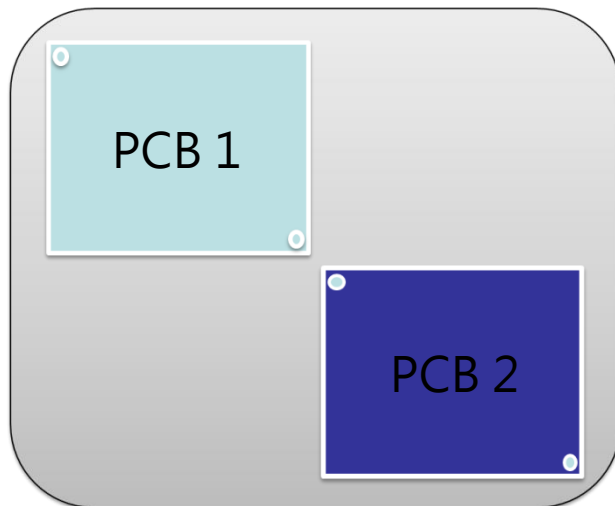


A: Main Fiducial Mark

B: Local Fiducial Mark

## 6. Multiple Fiducial Mark Alignment

Fiducial marks are automatically checked before every cutting process. If misalignment is detected within pre-set tolerance, the routing path will translate according to the fiducial position shift. Should misalignment over tolerance, cutting process will be stopped immediately with a machine alarm.



## 7. Cutting Path Translation

By aligning the fiducial marks, our program enables cutting path translation to other identical PCBs. This means save time when setting up cutting path.

# Superb Product Features

## 8. Production Information

Showing product name, produced quantity, cycle time, and etc.

Product	<input type="text"/>	OPEN
Quantity	919 pics	RESET
Cycle Time	17.50 sec	
Status	Comp	Manual
<input checked="" type="checkbox"/> Standby	x1 <input type="text"/> ΔD <input type="text"/>	<input type="checkbox"/> FRD
<input type="checkbox"/> Cut Waitting	y1 <input type="text"/> ΔD <input type="text"/>	<input checked="" type="checkbox"/> BACK
<input type="checkbox"/> Cutting	x2 <input type="text"/> ΔD <input type="text"/>	
	y2 <input type="text"/> ΔD <input type="text"/>	

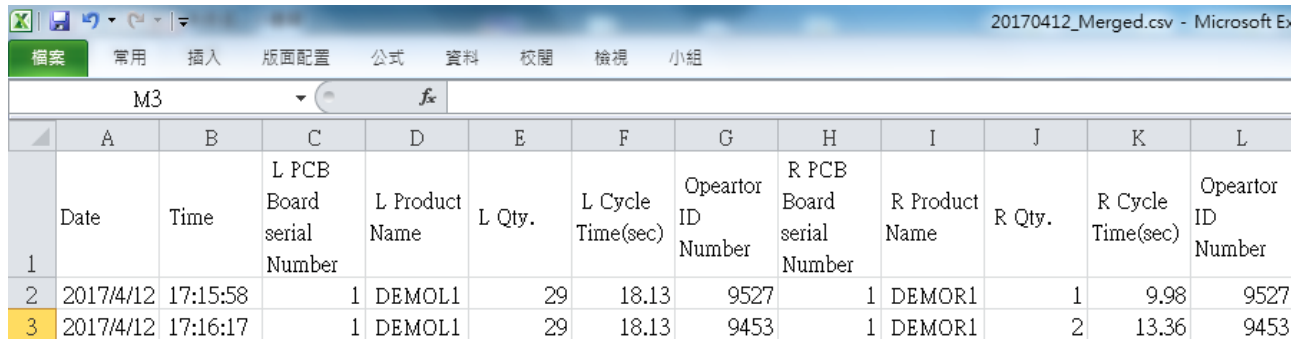
Product	<input type="text"/>	OPEN
Quantity	309 pics	RESET
Cycle Time	10.02 sec	
Status	Comp	Manual
<input checked="" type="checkbox"/> Standby	x1 <input type="text"/> ΔD <input type="text"/>	<input type="checkbox"/> FRD
<input type="checkbox"/> Cut Waitting	y1 <input type="text"/> ΔD <input type="text"/>	<input checked="" type="checkbox"/> BACK
<input type="checkbox"/> Cutting	x2 <input type="text"/> ΔD <input type="text"/>	
	y2 <input type="text"/> ΔD <input type="text"/>	

Quantity	<input type="text"/> 1	pics
Bit Dia	<input type="text"/> 1.50	mm
Bit Shift Distance	<input type="text"/> 0.0	mm
Shift Num	<input type="text"/> 0	
Bit Life	<input type="text"/> 1	m
Cut Speed	<input type="text"/> 20.00	mm/sec

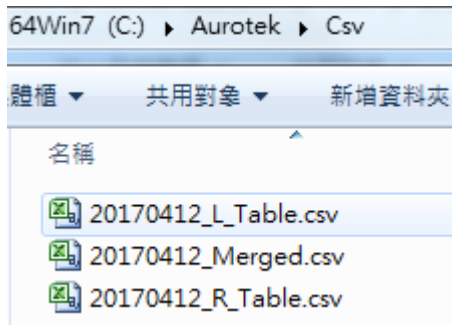
## 9. Bit & Lifespan Management

When cumulated cut distance reaches pre-set bit life, the program will give alert for bit change notification.

# Superb Product Features



	A	B	C	D	E	F	G	H	I	J	K	L
1	Date	Time	L PCB Board serial Number	L Product Name	L Qty.	L Cycle Time(sec)	Opeartor ID Number	R PCB Board serial Number	R Product Name	R Qty.	R Cycle Time(sec)	Opeartor ID Number
2	2017/4/12	17:15:58	1	DEMOL1	29	18.13	9527	1	DEMOR1	1	9.98	9527
3	2017/4/12	17:16:17	1	DEMOL1	29	18.13	9453	1	DEMOR1	2	13.36	9453



## 10. Production Traceability

Production data would be automatically recorded and stored in the IPC. Information such as Date, Time, Product Serial Number, Product Name, Production Quantity, Production Cycle time & Operator ID will be kept for future tracking.  
(An optional barcode reader is required to enable this function)

# Optional Features



## A. Safety Area Sensor

To prevent any accident during operation, our optional block-out infrared safety sensors detect moving actions when cutting in progress.

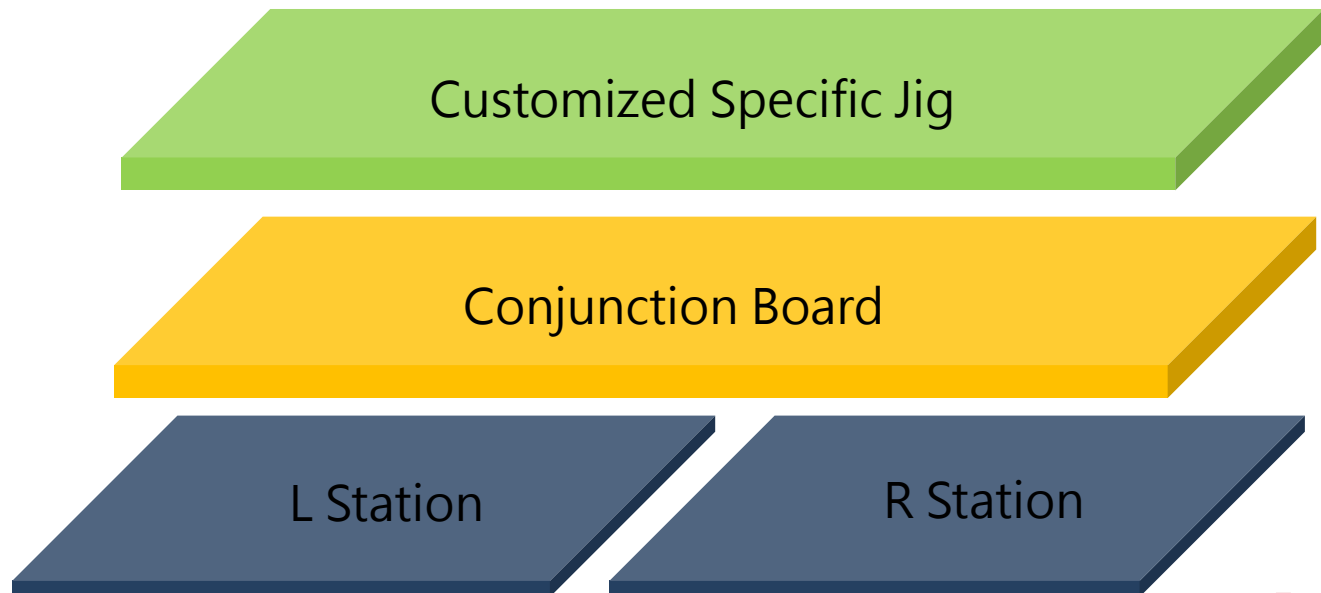


# Optional Features

---

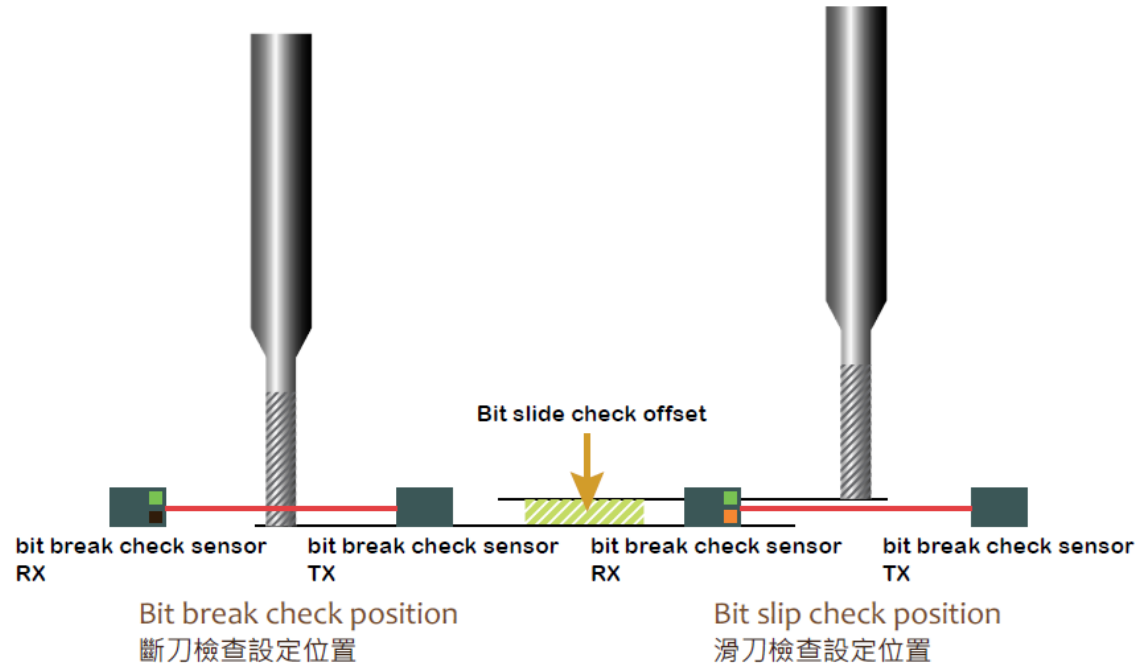
## B. Working Station Conjunction Board

At the time when you need to depanel extra large PCBs, a working station conjunction board is required to install on top of the 2 working stations, which turns the dual working stations into a super large working table for cutting.





# Optional Features



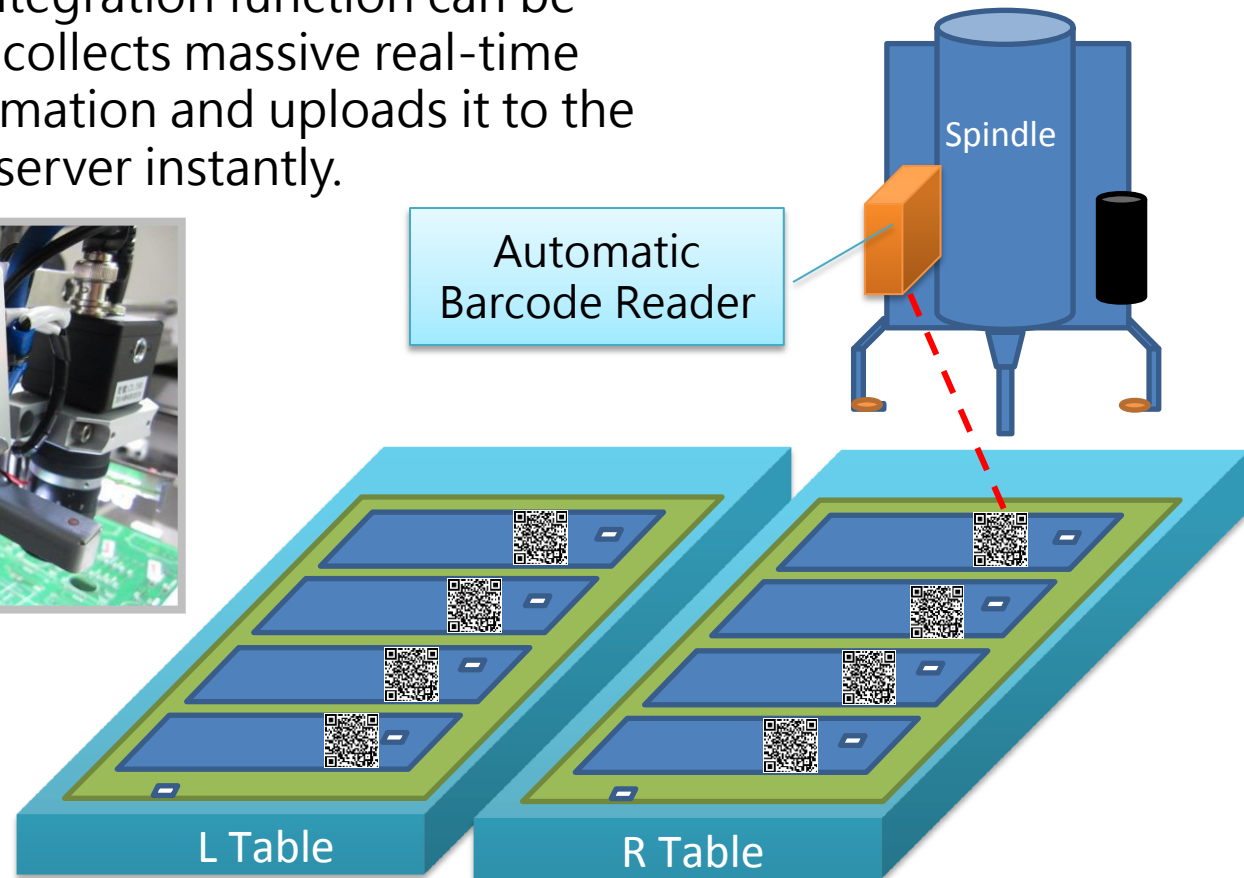
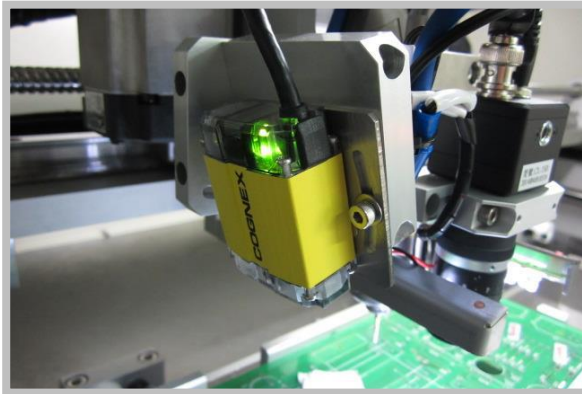
## C. Bit Broken & Bit Slip Detection Sensor

The using condition of routing bit directly influences the cutting performance. The bit sensor can monitor any unusual using conditions during every routing task. Whether the bit is not clipped properly or the bit is broken, the system immediately stops operations and give alarm to operator.

# Optional Features

## D. Linking Barcode Module & CIM / MES Function

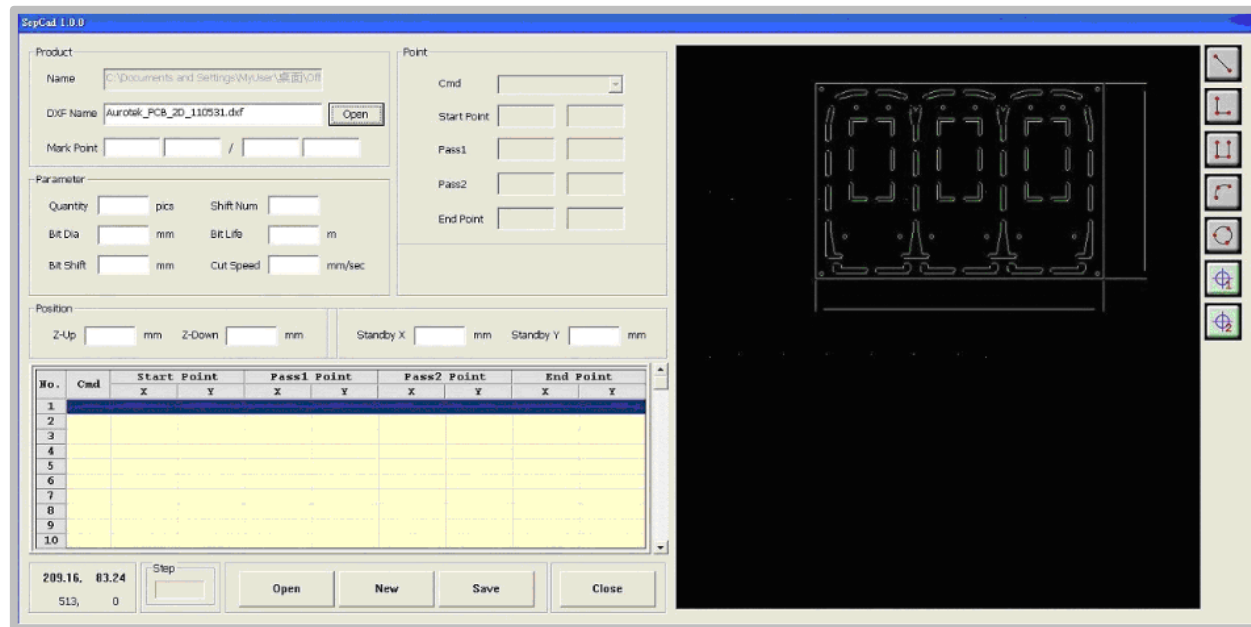
In response to Industry 4.0 era, the new complete data integration function can be easily setup and collects massive real-time production information and uploads it to the central terminal server instantly.



# Optional Features

## E. Off-line Editing Program

In response to Industry 4.0 era, users only need to upload AUTO CAD DXF to OFF-LINE EDITING PROGRAM, and use mouse to simply create cutting program. Then use USB storage device to save the edited program and upload to machine USB port. It is simple and efficient.



# Other Flexible Options

---

F. UPS Support System

G. Spindle Speed Adjustment System

H. USB Backup System



Aurotek is well-experienced to cooperate with our global clients and never let down our client trust. We sincerely welcome you to join us developing your own customized system.



# Global Service Support Platform

The image displays the Aurotek SNG Digital Knowledge Support Downloads website. The main page features a header with the Aurotek logo and navigation links. Below the header is a large banner image of people working at computers, with the text "Enterprise Education & Training". The main content area is divided into several sections, including "自動化組件" (Automation Components), "自動化設備" (Automation Equipment), "光電技術&製程" (Optoelectronic Technology & Process), and "其他課程" (Other Courses). A video player interface is overlaid on the right side of the main page, showing a video titled "Y-S330Mメンテナンス手順" (Y-S330M Maintenance Procedure). The video player includes a progress bar, a list of steps, and a table of contents.

**自動化組件**

- 單軸模組 控制盤
- 控制IC 馬達
- 自潤軸承 傳動元件
- 減速機 高精度平台
- 石英震盪器

**自動化設備**

- 切削機 機械手臂
- 光通訊設備
- 電鍍清洗系列(Plasma)

**光電技術&製程**

- 圖形化基板
- 圖形化技術與設備

**其他課程**

- 自動化課程 節能安全
- 維護與保養 數位學習

**Y-S330Mメンテナンス手順**

講 師	購 入 日	購 切 日	コ ー ス 全 長
-	2015/05/18 09:24	2015/05/22 13:24	00:30:47

**ステップ**

ステップ	項目
9	メンテナンス用ツールを作業領域に忘れないようにご注意ください。
10	電源をオンにしてください。

- ▶ Complete machine training program
- ▶ Global In-time technical support
- ▶ 24 hours professional post-sales service



# Global Customers



---

# THANK YOU!

