

# Y-S330IN-LINE-SL/SR PCB Depaneling System

2018 Jan

Video

<https://safesync.aurotek.com/app#folder/CRKJ/Standard/?a=YqsHeLGwSrs>

# Y-S330IN-LINE-SL/SR



[www.aurotek.com.tw](http://www.aurotek.com.tw)

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# Feature Introduction

## Carrier with Nozzles

Moving carrier with smart nozzle design enables automatic material input and production outflow.

## In-let Conveyor

Adjustable width to suit various sizes of PCB panel.

## 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).

## 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.

## 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.

## Dust Suction Duct

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

## Waste Bins

Large Volume bins to receive major waste PCB fragments after cutting.

## Controller

2 PC-based 4-axis motion controller.



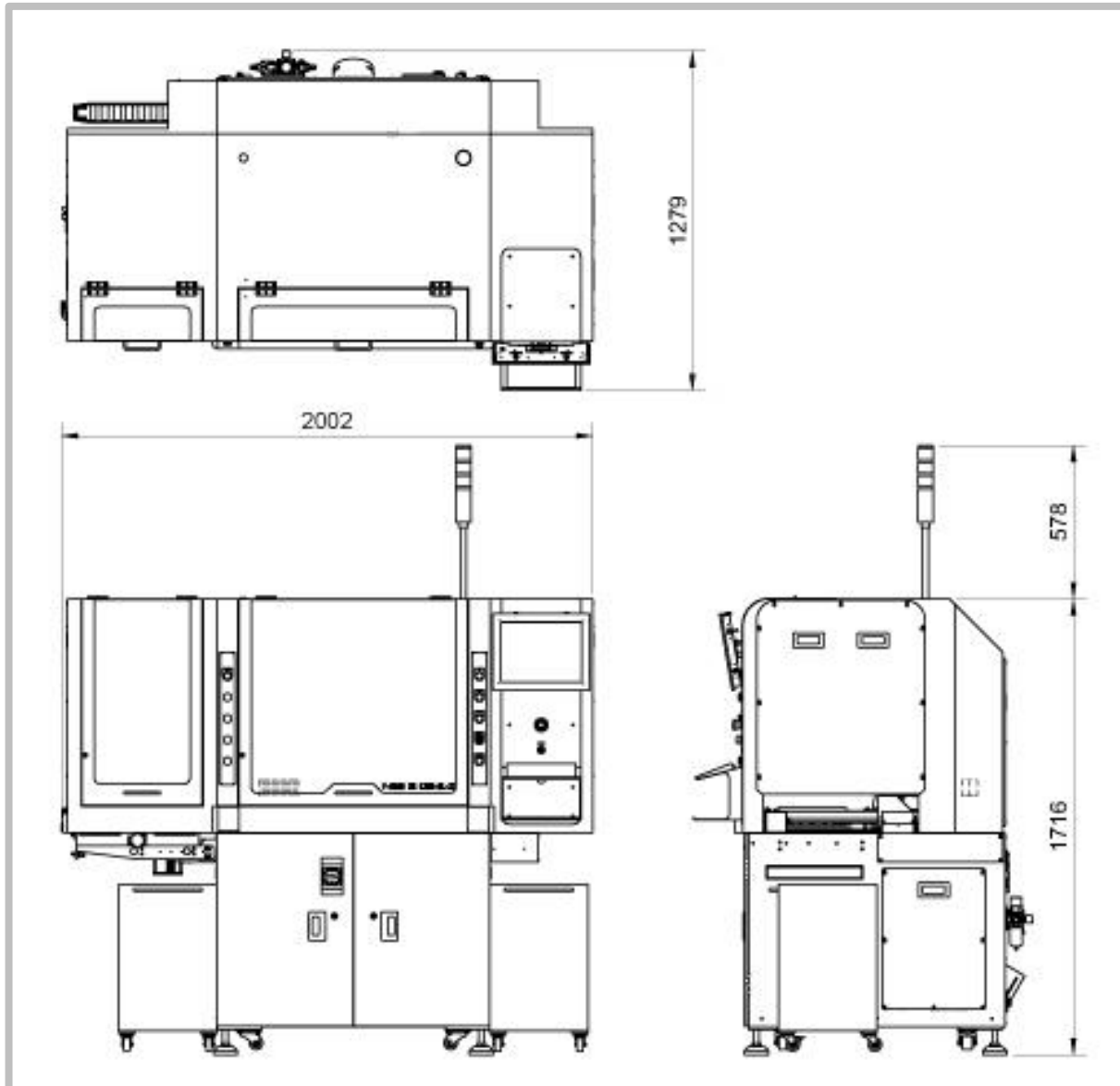
# Specification

Setting Fixture	2 stations
Working Area	X:330mm, Y:350mm, Z:60mm
Cutting Area	Max : X:330mm, Y:350mm Min : X:100mm, Y:100mm Z:15mm
PCB Component Height	Top side : 15mm Bottom side : 45mm
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	± 0.08 mm
Positioning Accuracy	± 10 μm
Positioning Repeatability	± 20 μm
Number of Axis in use	7 Axes (X, YL, YR, Z, Carry, P/P, Conveyor).
Driving Speed (Max)	X, YL, YR : 1000mm/sec, Z: 750mm/sec
Cutting Speed (Max)	X, Y, Z: 100mm/sec
Spindle Motor	High speed variable frequency motor 265W (Max.58,000rpm) ; Option: 4025DC-T: 470W (Max:30,000rpm) ; 4033:500W (Max:100,000rpm)
Bit Change	Manual/ Automatic - Optional
Cutting Ability	Linear, Circular, U-curve, Arc, L-curve
Motor of Axis	7 Axes (200W AC Servo motors)
Bit Shift Count	1~9 (Availability depends on PCB thickness)
Route Planning	Direct coordinate input or manual guiding with × 10 CCD camera

# Specification

Bit Break Detection	Standard
Program Storage	HDD
Program Backup	USB
Operating System	Windows 7
Man-Machine Interface	Touchscreen Industrial Monitor + Keyboard + Mouse
Conveyor Adjustment	Manual adjustment Max : Y:350mm Min : Y:100mm
Conveyor load capacity	Max : 2 Kg
PCB Loading/Unloading	Automatic
Power Supply	3 Phase AC220V±3% 50 Hz/60Hz, 2.5 kw
Air	0.5Mpa
Dimensions	(W)2002mm × (D)1279mm × (H)1716mm + 578mm Signal Light
Weight	approx. 640 Kg
Base Height	900mm Max : 930mm
Vacuum Cleaner	YSF-V605 5HP 3.7kw

# Specification

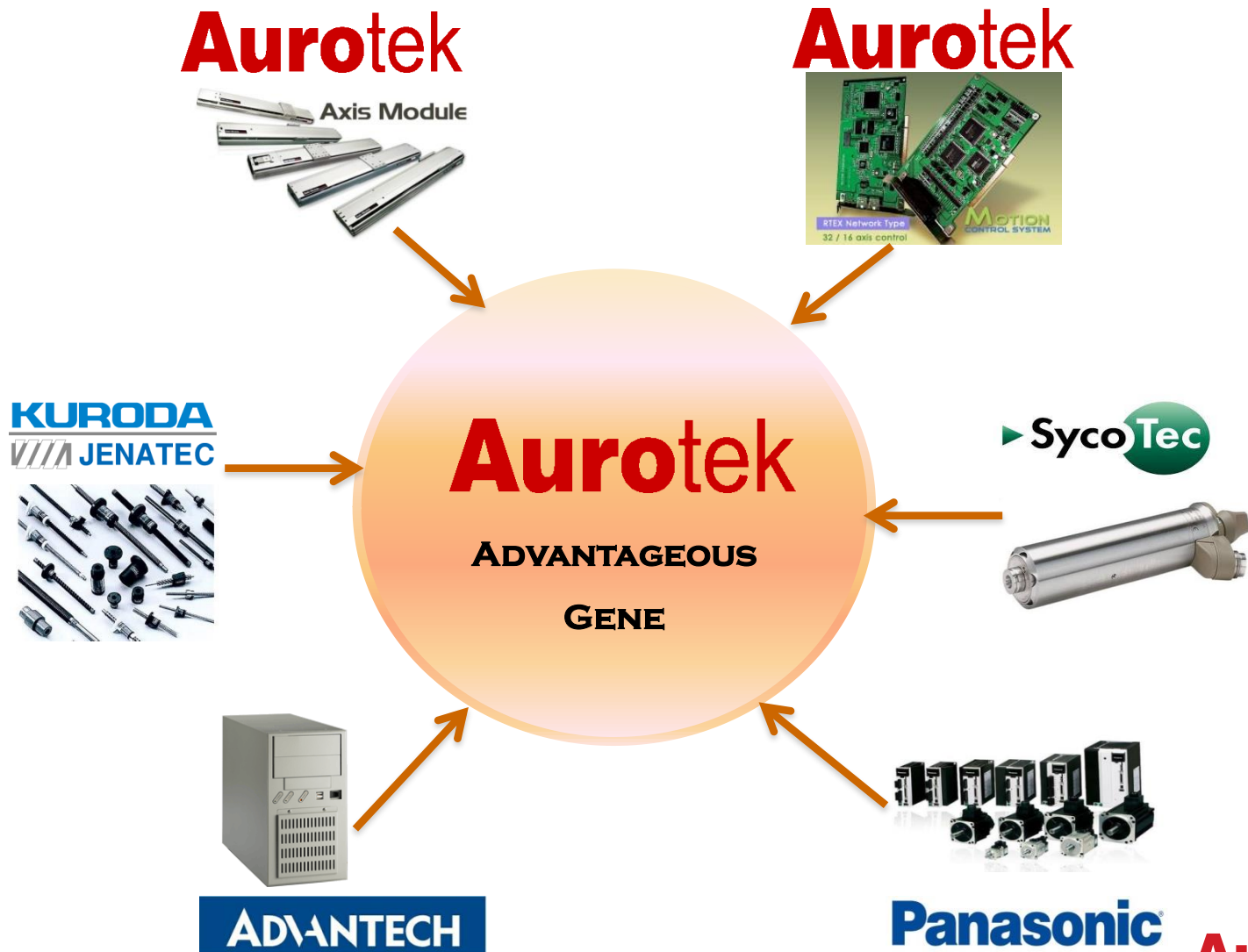


# Advantages & Benefits

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- Fully Automatic Loading/Unloading Processing In-line Machine
- High Speed & Precision
- Machine Customization Available
- 24Hr Service & Support Website
- Customized Jig
- Cost-Effective
- High C/P Values
- Warranty starts from at least 1 year

# Advantageous Genes



**Panasonic**

**Aurotek**



# Product Overview



## Strong Inner/Outer Mechanical Structure

Using Aurotek own brand high precision actuator module.

X, YL, YR, Z are driven by individual Panasonic servo motor



**Panasonic**

**Aurotek**  TAIWAN EXCELLENCE

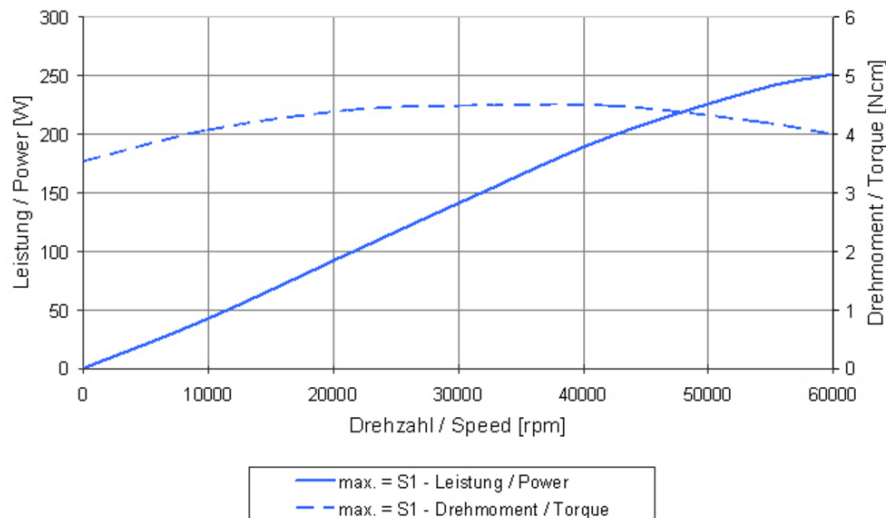
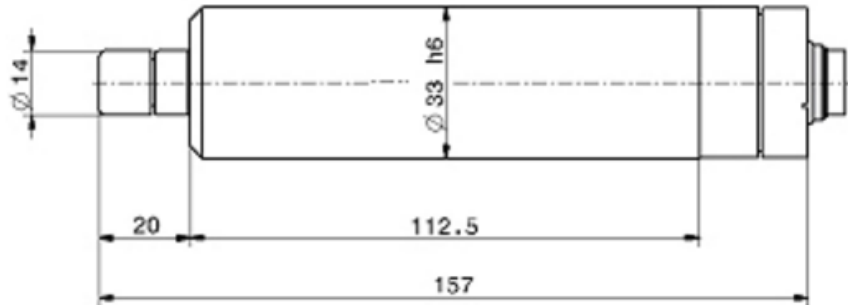


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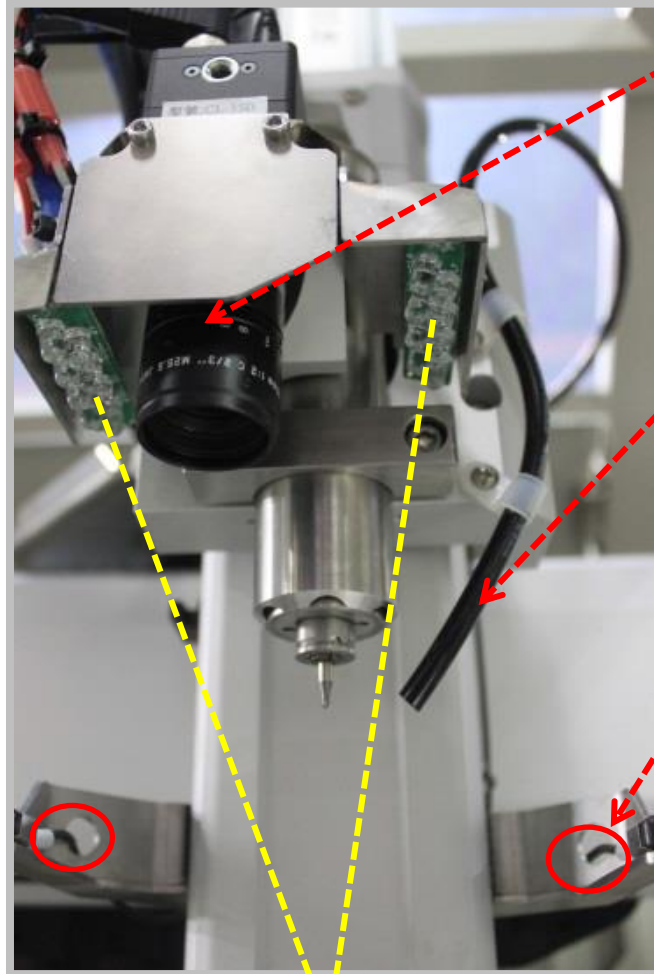
# Spindle & Motor

## 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):  $\leq 1.5 \mu m$   
Cooling system: Self-ventilation fan  
Cooling via clamping bracket  
Housing material: Stainless steel

# Product Overview



## CCD camera with LED light

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.

## Bit break check sensor

A standard item in r-S330 series. Sensor detects bit breakage after every cutting movement.

LED lights

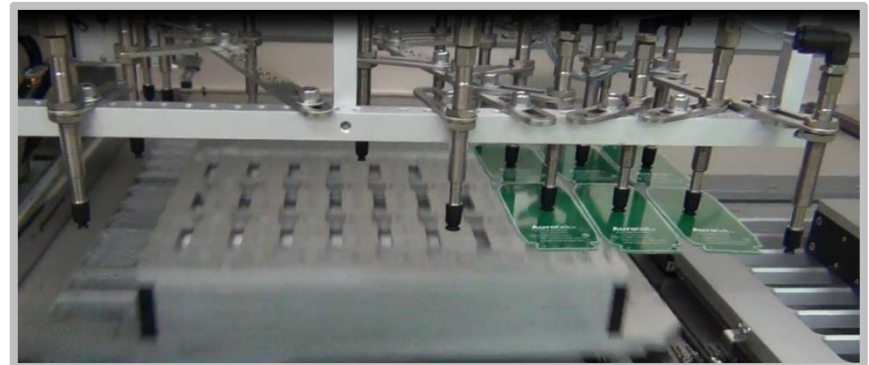
# Product Overview



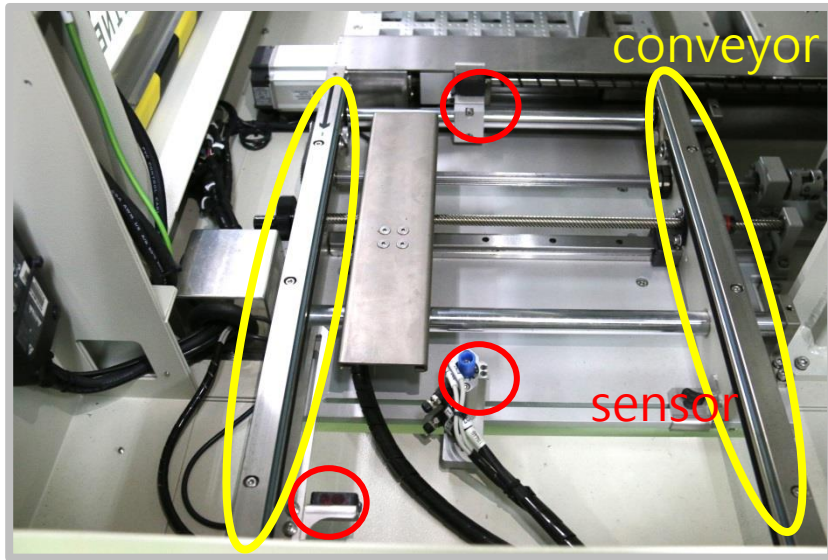
## Carrier and Pick & Place Axis

Integrated Carrier & P/P Axis can precisely and automatically transport PCB panels from conveyor to jig. After cutting process is done, it also drops waste and unloads depanelized PCB to production outlet.

Nozzles/Gripper Module



# Product Overview



## Adjustable Inlet Conveyor & Sensor

Adjustable width to suit varies sizes of PCB panel.

Width Max. 350mm, Min. 100mm

Weight Max. 2 kg

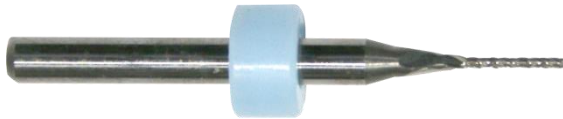
Direction of Production Flow:

r-S330 IN-LINE SL: Left in, Right out

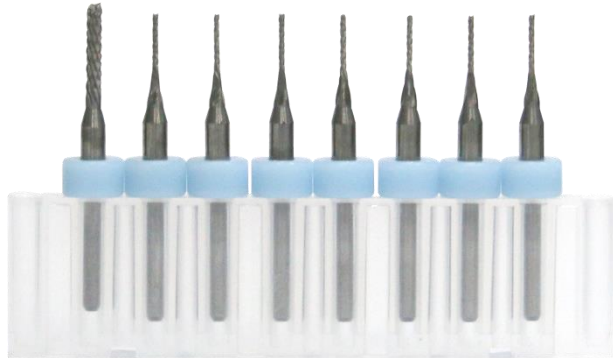
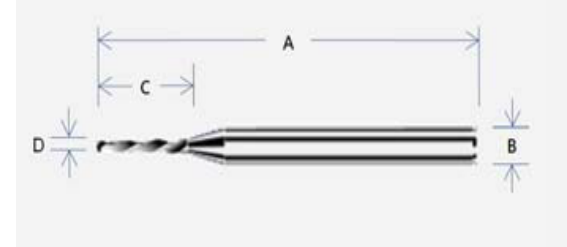
r-S330 IN-LINE SR: Right in, Left out



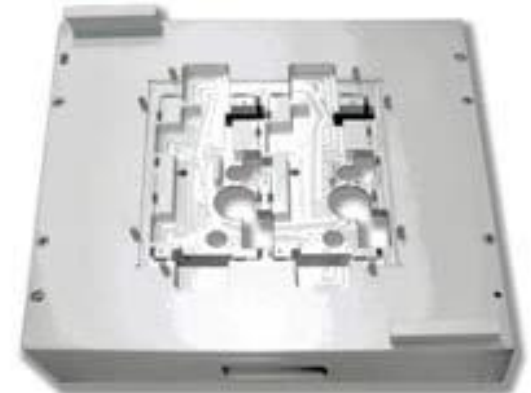
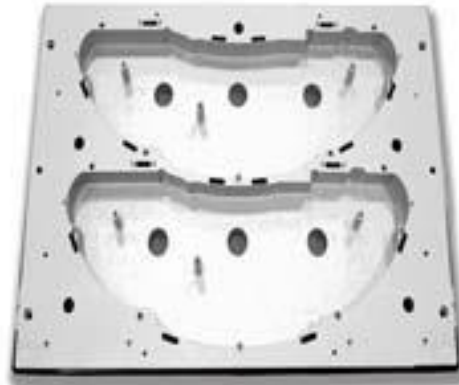
# Routing Bit & Customized Jig



**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



**Customized Jig**  
provides a more stable and accurate routing environment to meet fully automated requirement.

# Dust Collector

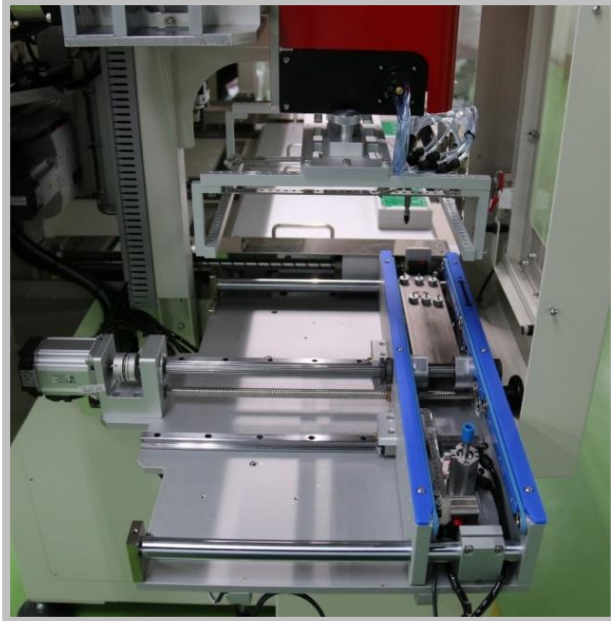


## YSF Series Vacuum Cleaner

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.

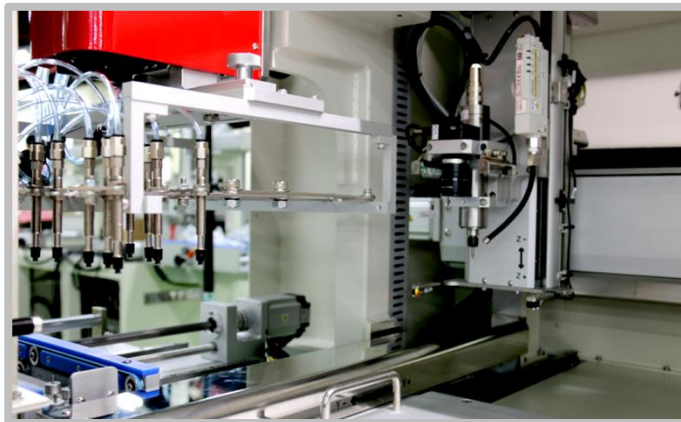
Type	YSF-V605
Dimensions (WxDxH)	780x665x1900mm
Weight	230 kg
Power Supply	3 phase 50Hz / 60Hz 220V 3.7 kw
Motor Power	5 HP
Inlet Wind Speed	28m/sec
Inlet Wind Capacity	40 m <sup>3</sup> /min
Inlet Wind Pressure	300 mm-Ag
Inlet Diameter	150mm
Outlet Diameter	203mm

# Superb Product Features



## 1. Fully Automated Solutions

Not only is r-S330IN-LINE-SL/SR able to provide peak standard performance as fully Automated Solutions, but is also able to adjust according to our customer's production line. We always take customer's needs as our top priority and ensure every motion operated successfully.

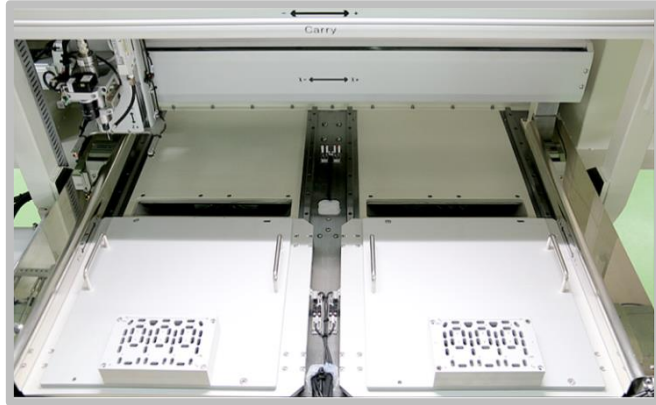


## 2. Loading/Unloading System

During the up/unloading action, we provide either nozzles with various vacuum systems or customized nozzles and gripper to ensure every PCB transport in precision and safety.



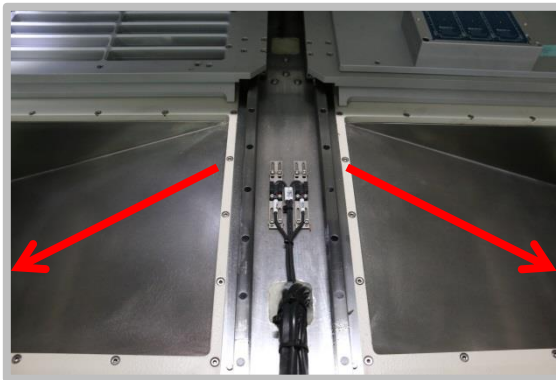
# Superb Product Features



## 3. Dual Working Stations

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

Working Area: 330\*350\*60mm \* 2 stations



## 4. Waste Ramp & Bins

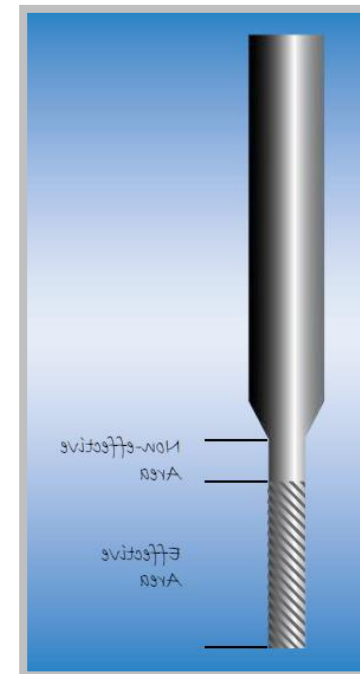
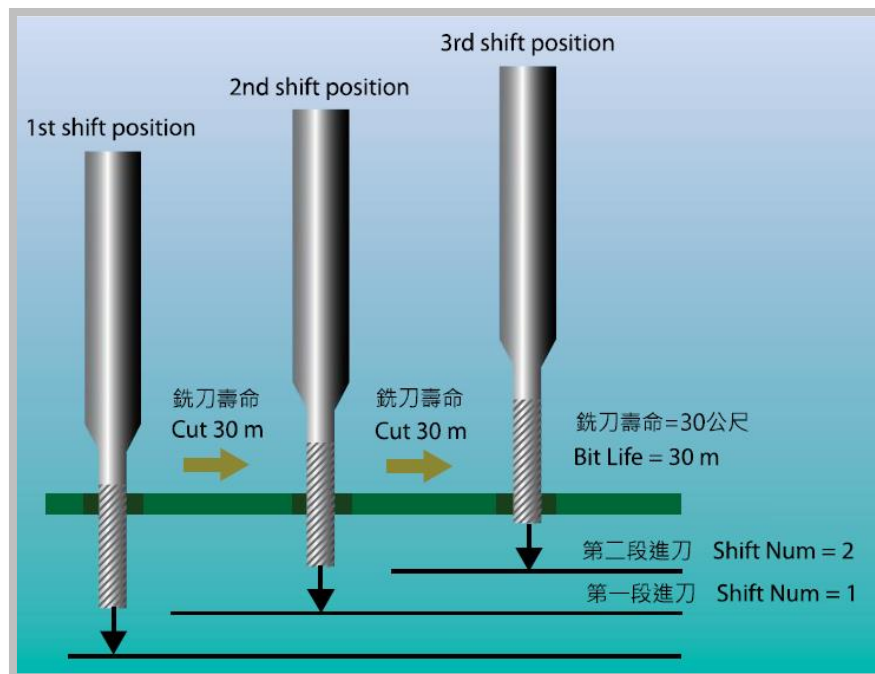
After depaneling, waste fragments are to be dropped through waste ramp under work stations, all the way down to the waste bins on both sides.

# Superb Product Features

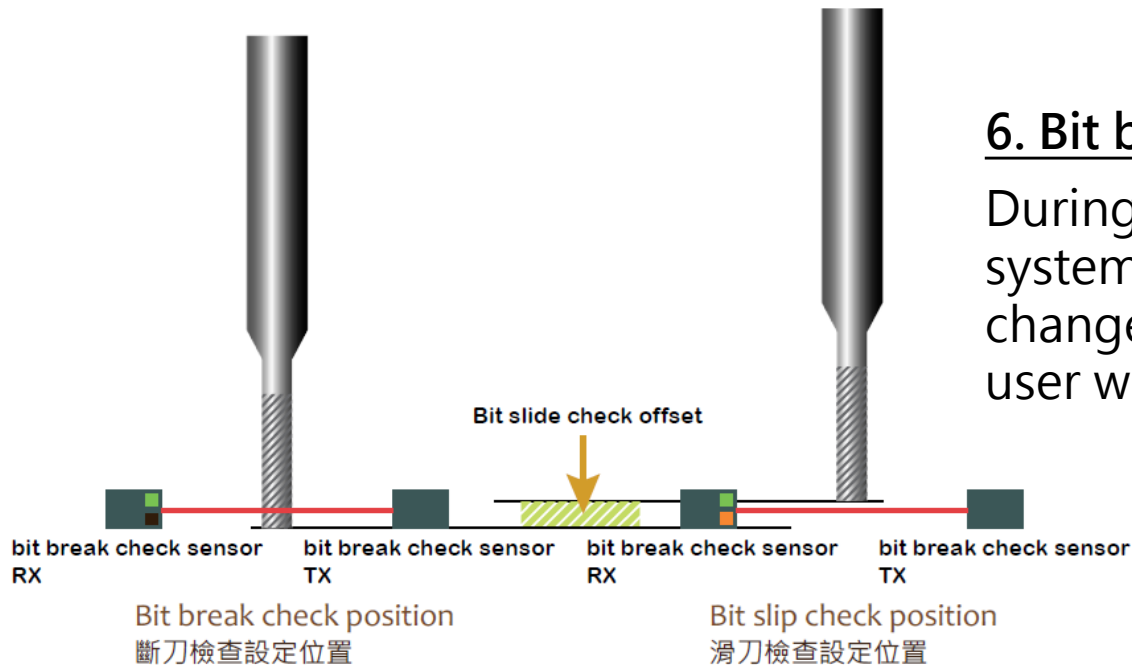
## 5. Maximum 9 Routing Bit Sectioning

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



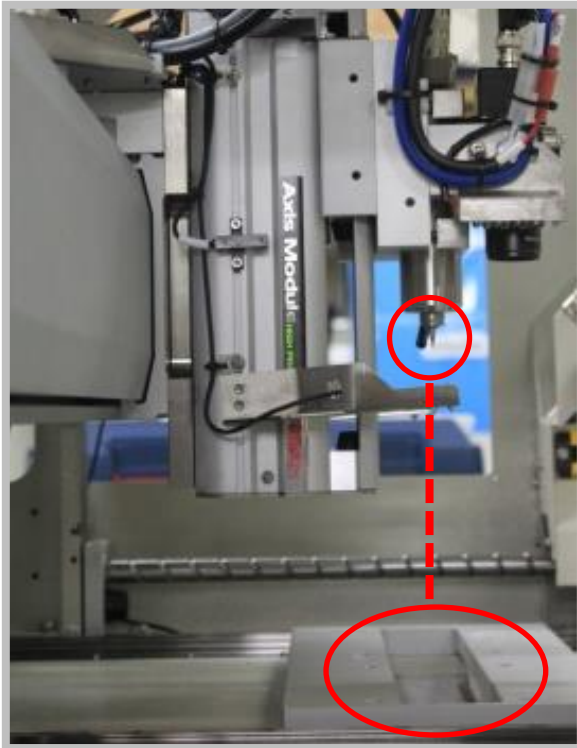
## 6. Bit break detection Sensor

During every routing task, the system detects any variable change of bit, and notices the user with alarm system.

## 7. Bit Slip Detection Sensor

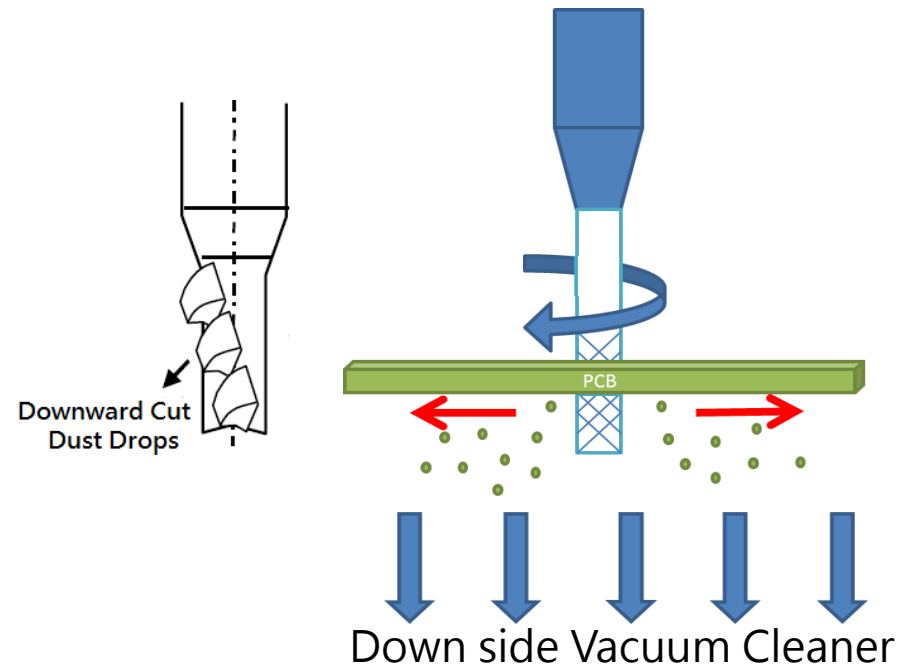
The condition of routing bit directly influences the cutting performance. Thus, we equipped with bit drop sensor to monitor whether the bit is clipped properly and its using condition.

# Superb Product Features



## 8. Small Dust Orifice

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, these enhance dust collection efficiency significantly.



# Superb Product Features



## 9. Graphical User Interface

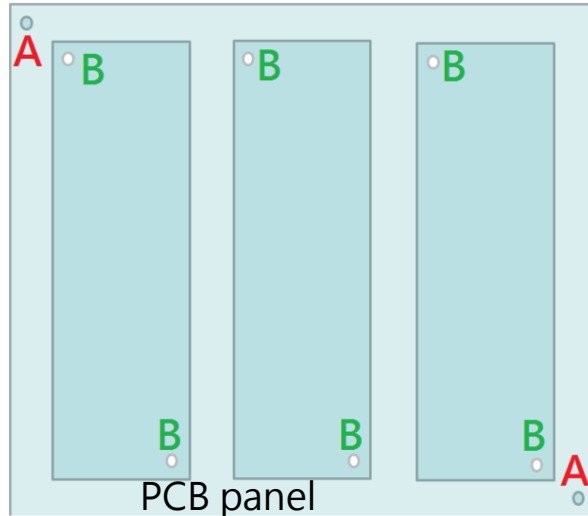
Window 7 IPC with CCD X10 zoom-in image makes programming easier & increases the accuracy of cutting point setting.



## 10. CCD Image Pathway Simulation

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

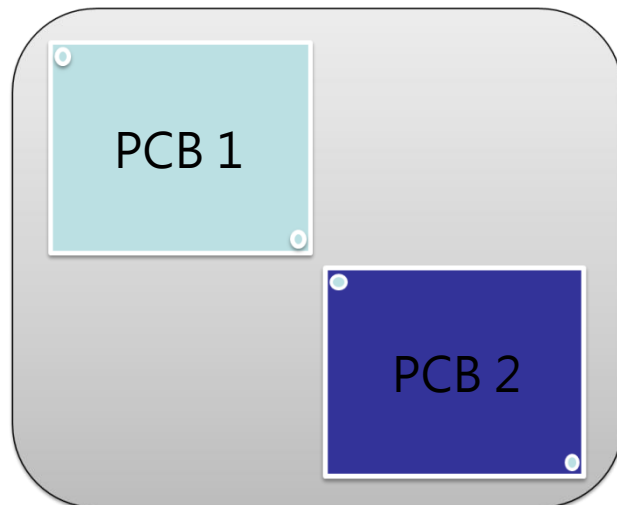
# Superb Product Features



PCB panel  
A: Main Fiducial Mark  
B: Local Fiducial Mark

## 11. Multiple Fiducial Mark Alignment

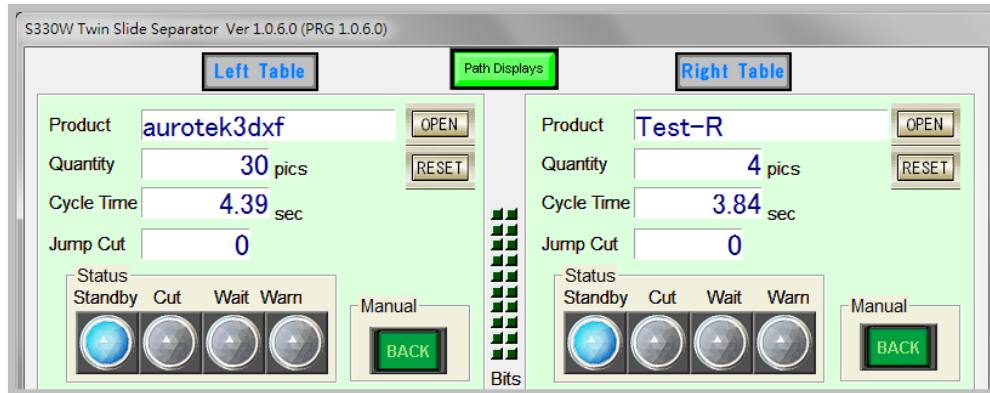
Fiducial marks are automatically checked before every cutting process. If misalignment is detected within pre-set tolerance, the routing path will translate according to the fiducial position shift. Should misalignment over tolerance, cutting process will be stopped immediately with a machine alarm.



## 12. Cutting Path Translation

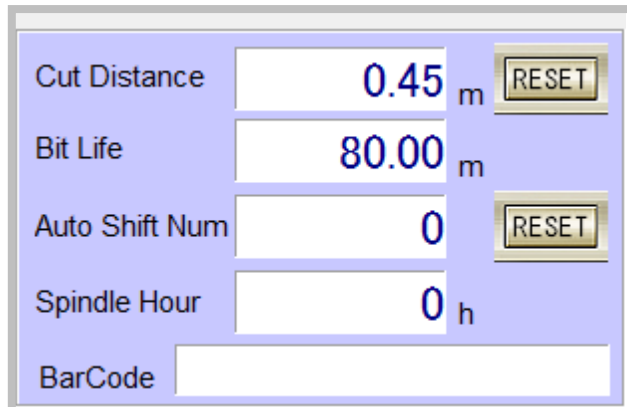
By aligning the fiducial marks, our program enables cutting path translation to other identical PCBs. This means save time when setting up cutting path.

# Superb Product Features



## 13. Production Information

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

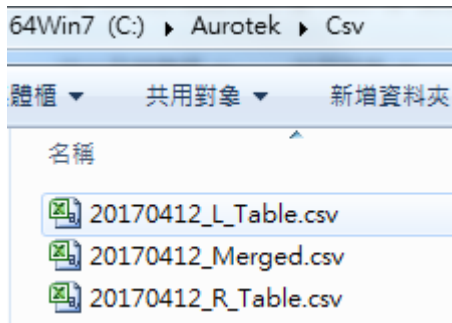


## 14. Bit & Spindle Lifespan Management

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

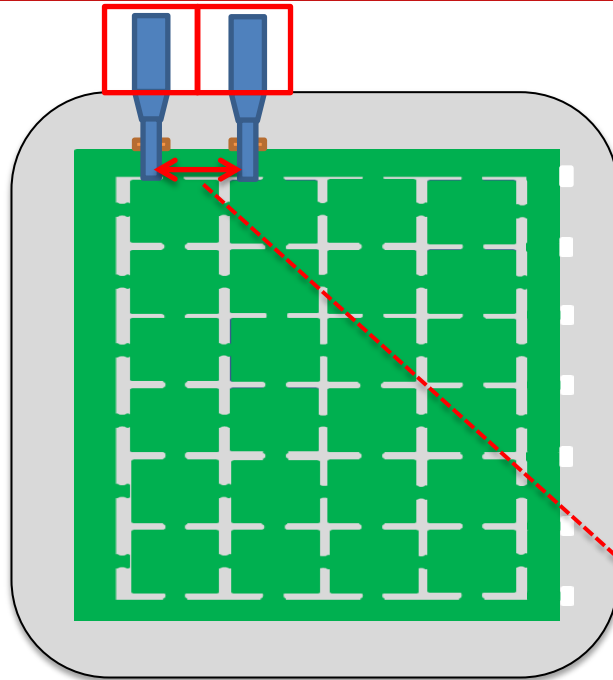


## 15. Production Traceability

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. Dual Spindle System

Aurotek knows that production efficiency matters. With dual spindle system, it cuts off work cycle time while doubles up the overall output.

Min. distance is 43mm  
Max. distance is 113mm

Spindles:

SycoTec Spindle 4026 \* 2

265W Max.58,000rpm (Torque Max.4.5Ncm)



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# Optional Features

## B. Aluminum Board Cut System

For cutting aluminum PCB panels, Aurotek suggests using higher power, lower rpm, and higher torque spindles.

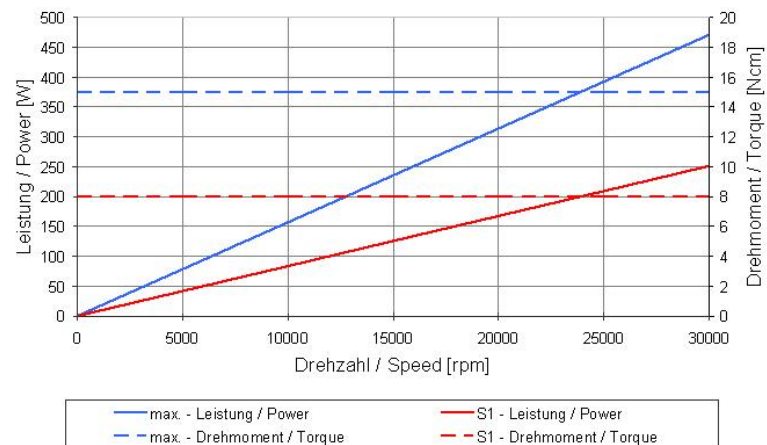
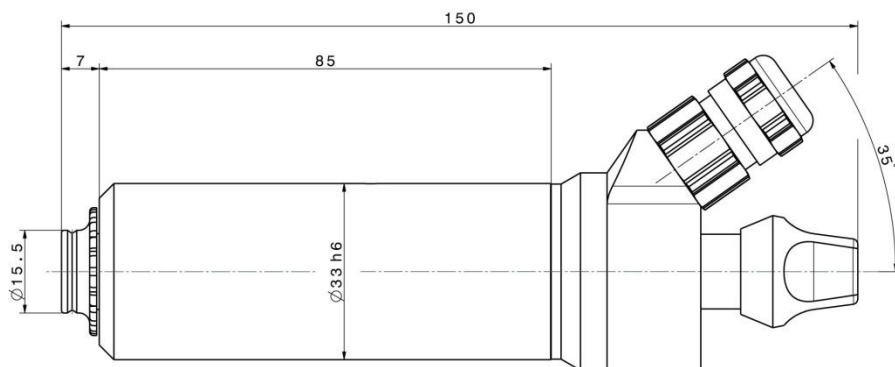
Spindle for Aluminum Board Cut System:

**SycoTec 4025DC-T** 470W Max. 30,000rpm (Torque Max.15Ncm)



Routing Bit & Cast Alloys:

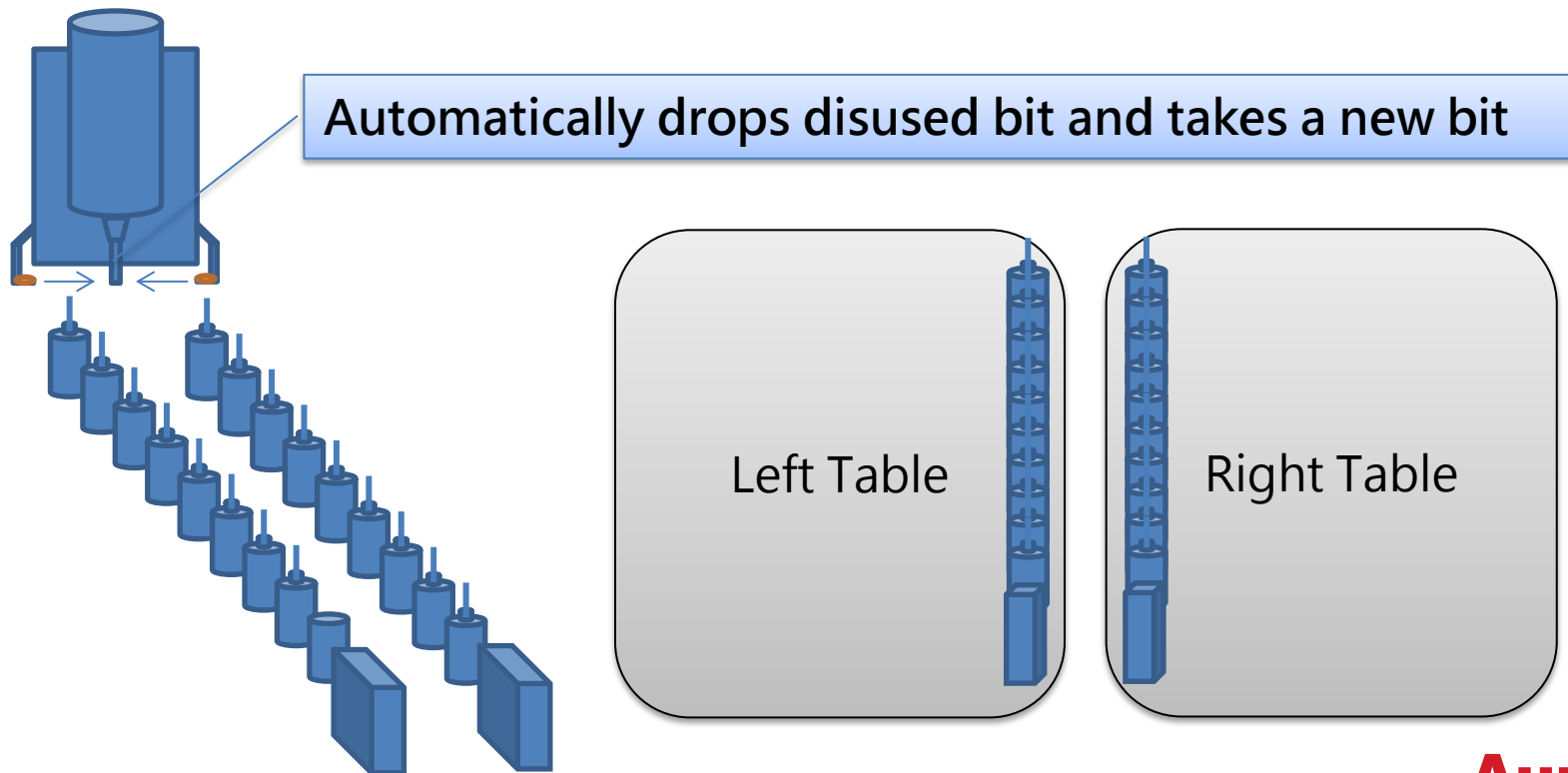
The Aluminum Association (AA) has adopted a nomenclature standard to wrought alloys. Please inform Aurotek aluminum alloy codes of MCPCB panel in order to get best cutting performance.



# Optional Features

## C. Automatic Bit Changer System

When the cutting blade reaches its limit, the system will replace with a new blade and resume production automatically. It dramatically reduces configuration time and maintenance related personnel costs.

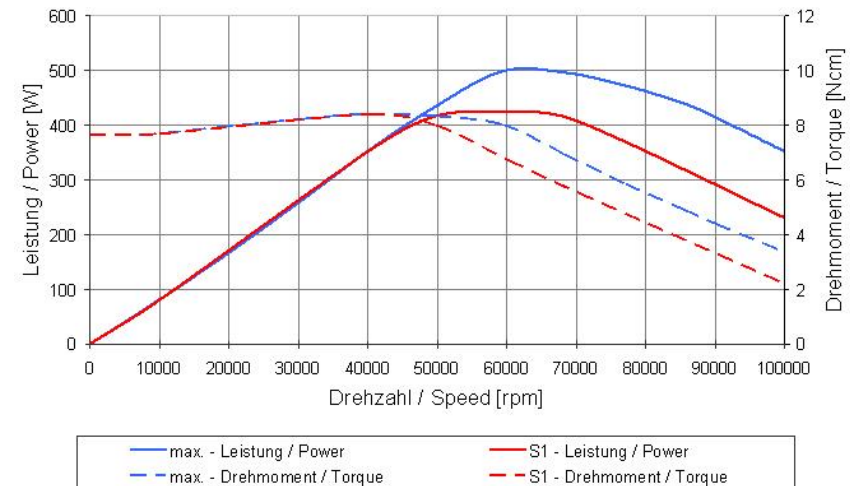
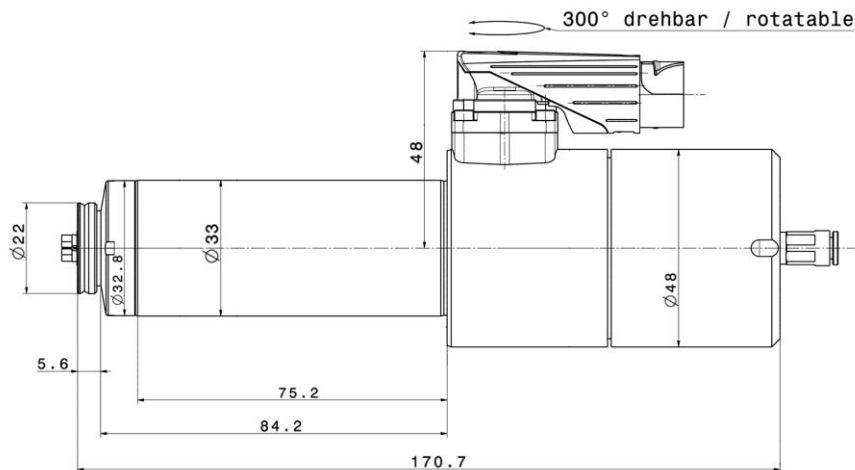


# Optional Features

## Spindles for Automatic Bit Changer System

To automatically change routing bit, SycoTec 4033 pneumatic spindle is required.

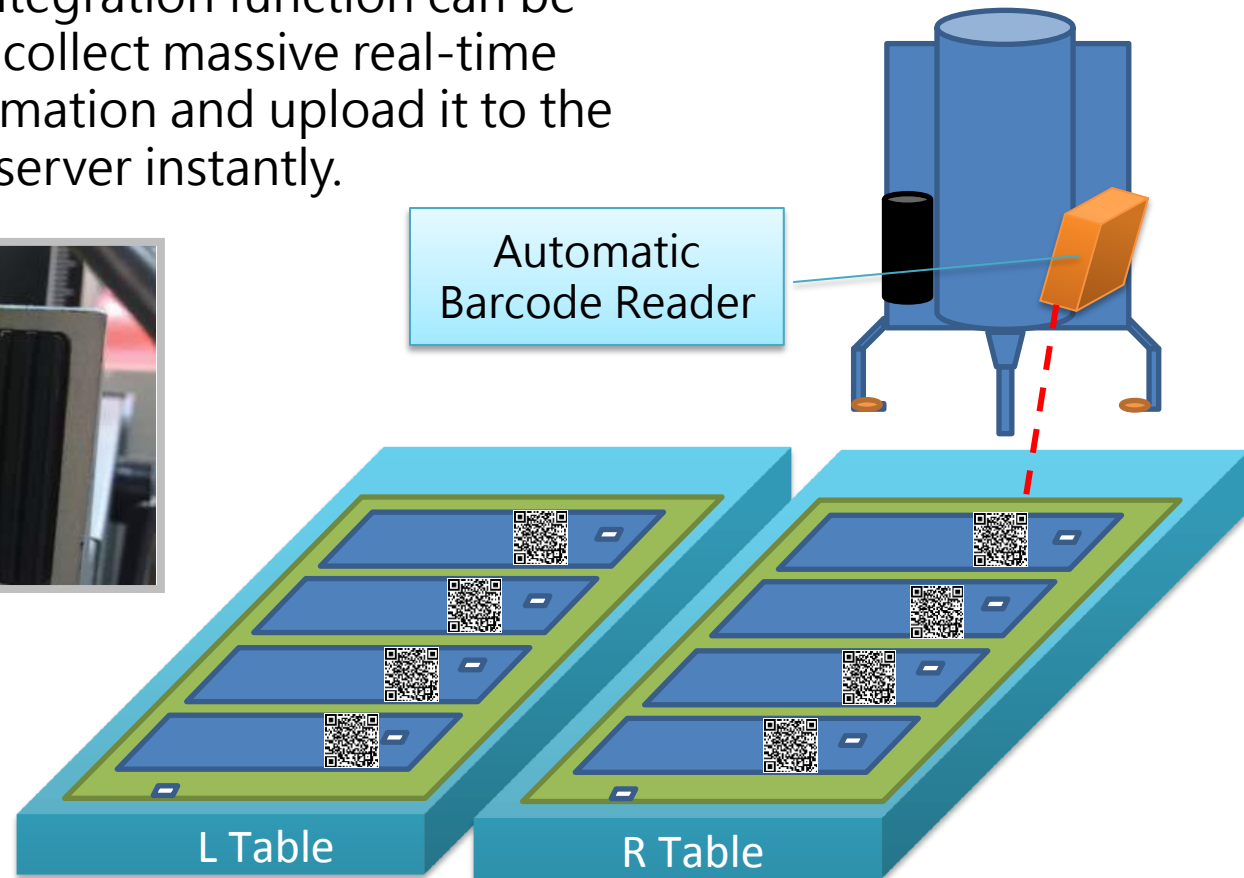
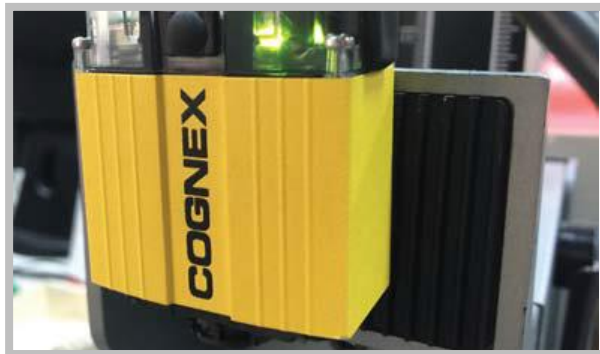
SycoTec 4033 AC Spindle:  
500W Max. 100,000rpm (Torque Max.8.4Ncm)



# Optional Features

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

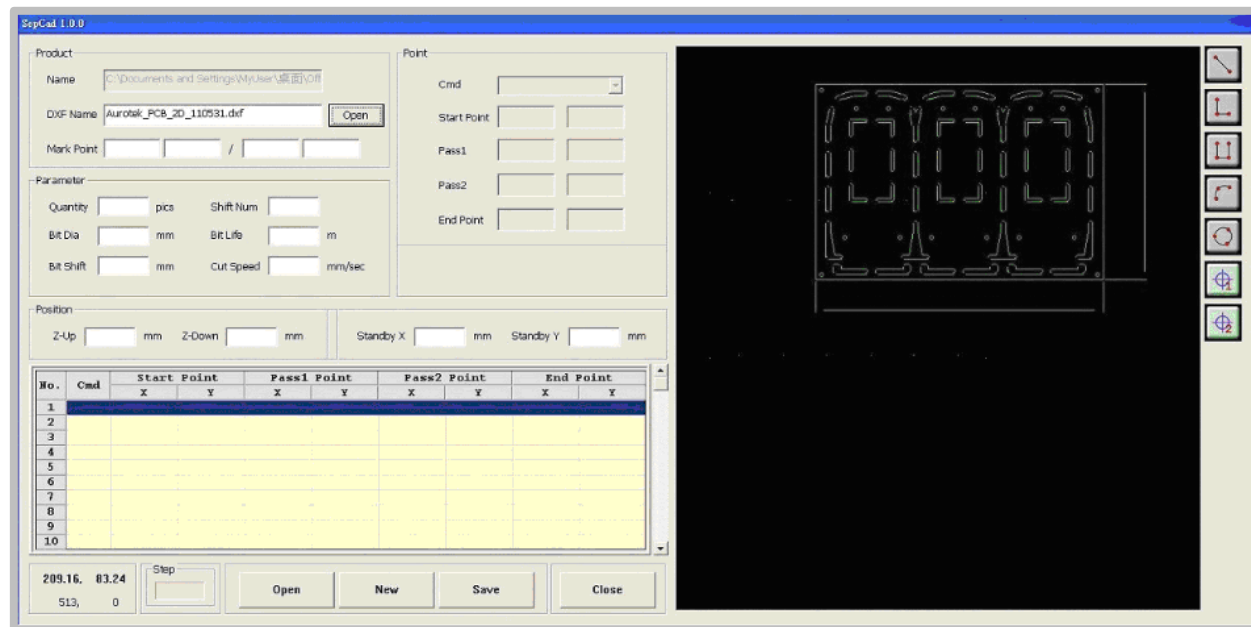
In response to Industry 4.0 era, the new complete data integration function can be easily setup and collect massive real-time production information and upload it to the central terminal server instantly.



# 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. Routing Bit Diameter Detection System

G. UPS Support System

H. Spindle Speed Adjustment System

I. 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.



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# Global Service Support Platform

**Aurotek SNG DIGITAL KNOWLEDGE**  
A Complete Solution from One Source | Support Downloads

首頁 檔案下載 會員專區 登入 加入會員

Enterprise Education & Training

產品技術課程 & 資料下載

- 自動化組件
- 自動化設備
- 光電技術&製程
- 其他課程

**Aurotek SNG DIGITAL KNOWLEDGE**  
Support Downloads

ホーム ダウンロード 会員エリア sngadmin ようこそ! ログアウト

New Player TEST - Internet Explorer

http://support.aurotek.com.tw/Templates/Template2013/default.aspx?UserID=sngadmin&VType=VOD&TemplateID=Tmp2012112315593270765895&Cou...

会員エリア

私のポイント

受講教室

学習履歴

步骤	項目
9	<p>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。</p>
10	<p>電源をオンしてください。</p> <p>ボタンを押してください。</p> <p>主画面に原点復帰ボタンを押してください。</p>

Y-S330Mメンテナンス手順

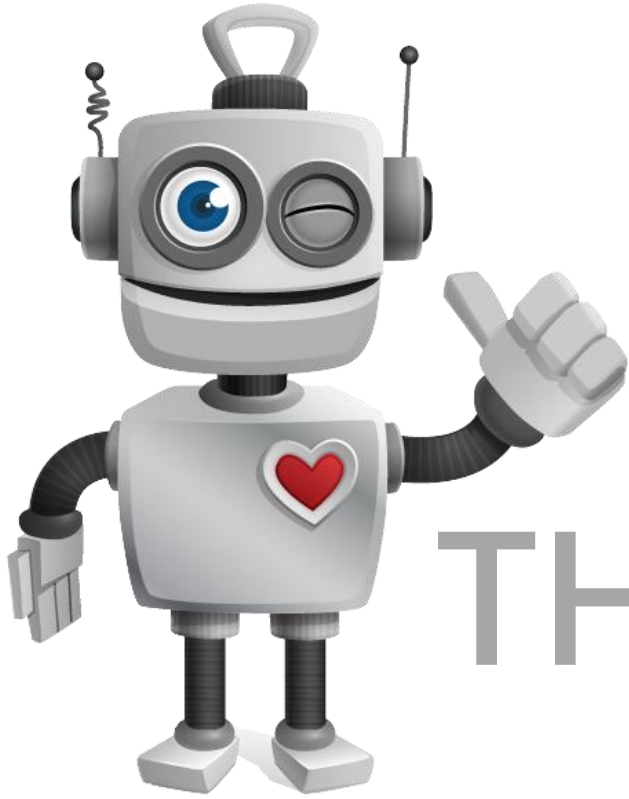
講師	購入日	締切日	コース全長
-	2015/05/18 09:24	2015/05/22 13:24	00:30:47

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



# Global Customers





THANK YOU!

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*A Complete Solution from One Source*

