

P CB Routing

HIGH PERFORMANCE
MACHINING CENTERS

印刷電路板成型機

www.sogotec.com.tw

印刷電路板成型機

PCB Routing Machine

Sogotec precision provides high-range CNC routing machines with high-end features. Sogotec precision has designed a new innovating machine to meet quality demands presently on PCB manufacturers.

總格精密提供各種規格的高精度PCB成型機，且持續研發創新機種，以滿足目前印刷電路板製造商對品質的要求





控制器 / Controller

選用業界最受信賴，德國Sieb & Meyer控制器，依照各廠需求，為您量身定做，提供完整選配功能，其優點如下：

- A. 專業的成型機控制器
- B. 人機操作介面簡單
- C. 專業刀庫管理功能
- D. 多功能偵測設計
- E. 動態尋pin功能
- F. 模組化設計，維修更快速
- G. WINDOWS操作介面，容易上手
- H. 網路連線，傳輸程式快且方便
- I. 支援程式格式最多（如Sieb & Meyer，Excellon）

Sogotec uses Sieb & Meyer's exemplary controller and can provide additional functions at the customer's request.

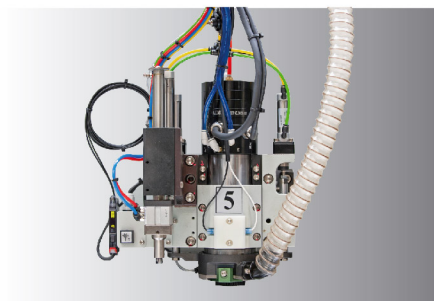
- A. Tailor made control system.
- B. User friendly operators interface.
- C. Advanced tools management.
- D. Multisystem diagnosis design.
- E. Auto pin inspection function.
- F. Module design for easy maintenance.
- G. Windows base system for easy use.
- H. Network function for handy program transfer.
- I. Supports different program types (For example, Sieb & Meyer, Excellon)

高剛性主軸 AEMG-L Spindle

選用最新高剛性高速主軸，極佳的動態Run-out及主軸剛性超越其他廠家，因應部分切削路徑含銅的多層板或鋁板亦能加工，並搭配水冷系統確保工作穩定。亦可選永磁式主軸(DC主軸)，扭力值較高，轉速無落差，可延長刀具壽命，主軸發熱低，加減速快，提升加工效率和品質。

Equipped with AEMG-L AC spindle, water-cooled system, excellent dynamic run-out performance, ultrahigh performance, even work for some path with copper of multilayer or aluminum PCB, ensures the best production performance and great stability.

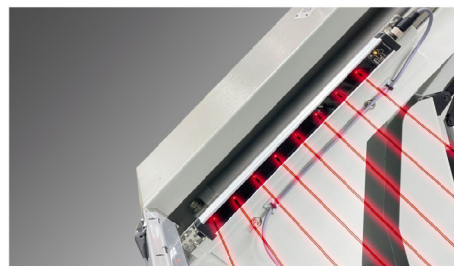
Optional DC spindle, higher torque, RPM without gap, can extend tool life, low spindle heat, acceleration and deceleration fast, enhance processing efficiency and quality.



安全光柵裝置 Safety Light Grids

全系列機種防護門配備『安全光柵裝置』設計，新系列機種提升光軸數量，完整保障操作人員工作安全

All of the Sogotec precision products are equipped with safety sensor at the front door to protect the operator, and new series were upgraded of safety light grids.



BBD 斷針偵測系統 B.B.D

- A. 壓力腳紅外線即時偵測斷針功能
- B. 搭配新式壓力腳設計，更適用於1.0mm以下小針偵測
- C. 壓力腳吹氣功能，降低BBD被粉屑附著，可因應不同材料的冷卻需求，提供多樣吹氣設計

- A. The real time break bit detection function of infrared rays in the pressure foot.
- B. With new design of pressure foot, more apply to tool detection under 1.0mm
- C. Additional air blow in the pressure foot, de-escalate scissel particle adhered on the BBD. Provides different design of air blow for different materials cooling demand.



選配 Optional

稼動率軟體 Activation

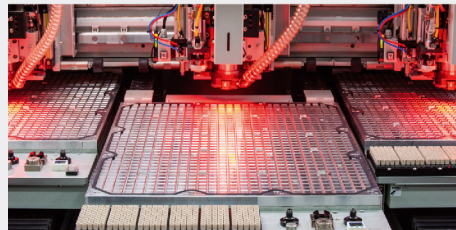
透過稼動率軟體掌控即時運作狀態，並可察看即時與歷史生產資訊。生產資訊包含刀具資訊、加工資訊、工作清單等等，透過資料分析進而提升生產效益。

Have real-time status and view historical production information via Activation rate. Data collection contains production data, processing information, tool information...etc. Effectively improve productivity by analyze the production data.

ID	Machine	Start Time	End Time	Production Data	Processing Information	Tool Information	Work List
000001	CNC	08:00:00	08:05:00	100.00%	100.00%	100.00%	100.00%
000002	CNC	08:05:00	08:10:00	100.00%	100.00%	100.00%	100.00%
000003	CNC	08:10:00	08:15:00	100.00%	100.00%	100.00%	100.00%
000004	CNC	08:15:00	08:20:00	100.00%	100.00%	100.00%	100.00%
000005	CNC	08:20:00	08:25:00	100.00%	100.00%	100.00%	100.00%
000006	CNC	08:25:00	08:30:00	100.00%	100.00%	100.00%	100.00%
000007	CNC	08:30:00	08:35:00	100.00%	100.00%	100.00%	100.00%
000008	CNC	08:35:00	08:40:00	100.00%	100.00%	100.00%	100.00%
000009	CNC	08:40:00	08:45:00	100.00%	100.00%	100.00%	100.00%
000010	CNC	08:45:00	08:50:00	100.00%	100.00%	100.00%	100.00%
000011	CNC	08:50:00	08:55:00	100.00%	100.00%	100.00%	100.00%
000012	CNC	08:55:00	09:00:00	100.00%	100.00%	100.00%	100.00%
000013	CNC	09:00:00	09:05:00	100.00%	100.00%	100.00%	100.00%
000014	CNC	09:05:00	09:10:00	100.00%	100.00%	100.00%	100.00%
000015	CNC	09:10:00	09:15:00	100.00%	100.00%	100.00%	100.00%
000016	CNC	09:15:00	09:20:00	100.00%	100.00%	100.00%	100.00%
000017	CNC	09:20:00	09:25:00	100.00%	100.00%	100.00%	100.00%
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000025	CNC	10:00:00	10:05:00	100.00%	100.00%	100.00%	100.00%
000026	CNC	10:05:00	10:10:00	100.00%	100.00%	100.00%	100.00%
000027	CNC	10:10:00	10:15:00	100.00%	100.00%	100.00%	100.00%
000028	CNC	10:15:00	10:20:00	100.00%	100.00%	100.00%	100.00%
000029	CNC	10:20:00	10:25:00	100.00%	100.00%	100.00%	100.00%
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000031	CNC	10:30:00	10:35:00	100.00%	100.00%	100.00%	100.00%
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000072	CNC	13:55:00	14:00:00	100.00%	100.00%	100.00%	100.00%
000073	CNC	14:00:00	14:05:00	100.00%	100.00%	100.00%	100.00%
000074	CNC	14:05:00	14:10:00	100.00%	100.00%	100.00%	100.00%
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000077	CNC	14:20:00	14:25:00	100.00%	100.00%	100.00%	100.00%
000078	CNC	14:25:00	14:30:00	100.00%	100.00%	100.00%	100.00%
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000082	CNC	14:45:00	14:50:00	100.00%	100.00%	100.00%	100.00%
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000086	CNC	15:05:00	15:10:00	100.00%	100.00%	100.00%	100.00%
000087	CNC	15:10:00	15:15:00	100.00%	100.00%	100.00%	100.00%
000088	CNC	15:15:00	15:20:00	100.00%	100.00%	100.00%	100.00%
000089	CNC	15:20:00	15:25:00	100.00%	100.00%	100.00%	100.00%
000090	CNC	15:25:00	15:30:00	100.00%	100.00%	100.00%	100.00%
000091	CNC	15:30:00	15:35:00	100.00%	100.00%	100.00%	100.00%
000092	CNC	15:35:00	15:40:00	100.00%	100.00%	100.00%	100.00%
000093	CNC	15:40:00	15:45:00	100.00%	100.00%	100.00%	100.00%
000094	CNC	15:45:00	15:50:00	100.00%	100.00%	100.00%	100.00%
000095	CNC	15:50:00	15:55:00	100.00%	100.00%	100.00%	100.00%
000096	CNC	15:55:00	16:00:00	100.00%	100.00%	100.00%	100.00%
000097	CNC	16:00:00	16:05:00	100.00%	100.00%	100.00%	100.00%
000098	CNC	16:05:00	16:10:00	100.00%	100.00%	100.00%	100.00%
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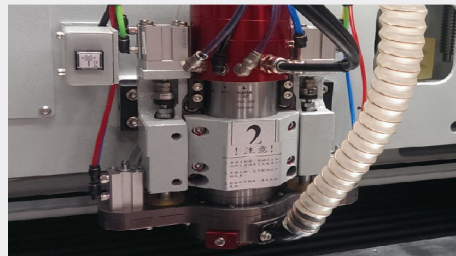
CCD裝置 CCD Device

CCD以光學點定位，對板材漲縮在精度上的影響能有更佳控制。
CCD positioning with better control the influence of accuracy from material's expansion and contraction.



無內PIN加工 Pinless Function

針對無內PIN設計基板加工，可對應小尺寸板材加工需求
The PINLESS function for panel processing without pin, to satisfy small PCB routing process.



真空檯面 Vacuum Table

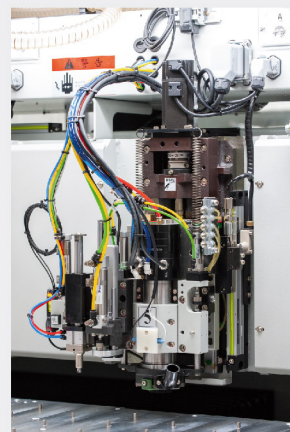
確實吸附基板，減少板面彎翹增加平整度，可搭配盲撈功能，提高盲撈精度

The panel be adsorbed indeed and reduce the panel of bending, to increase the blind routing accuracy.



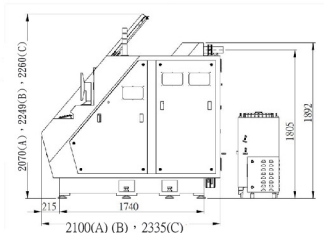
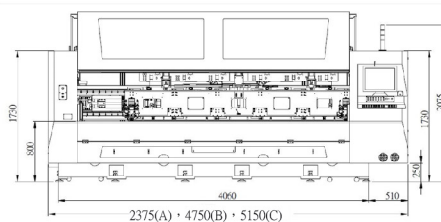
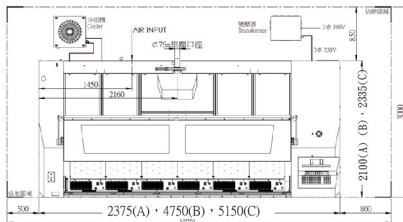
盲撈功能 Blind Routing

- 標準式盲撈：利用下刀點高度探測，補償不同位置的盲撈精度
Using depth control and make up accuracy of different positions.
- 探針式盲撈：利用探針功能，先探測基板或檯面高度，提高盲撈精度
Using the probing function then detected the panel or table height to improve blind routing accuracy.
- 電流式盲撈：藉由電流訊號得知表面導體或內層銅箔位置，並使盲撈深度依不同探測數據追隨變化，求取最精確的盲撈深度。
To detect the surface conductor or inner copper depth by CBD signal, and follow the dynamic data to control the depth for the best accuracy.



技術規格 Specification

新機種系列/New Series				
機型	MODEL	PR-2228/N6 PR-2228/D6	PR-2533/N6 PR-2533/D6	PR-2228/3D6
Z軸款式	Z Axis Type	N系列機種：為單獨Z軸 / N series: Single Z Axis D系列機種：為獨立Z軸 / D series: Independent Z	N系列機種：為單獨Z軸 / N series: Single Z Axis D系列機種：為獨立Z軸 / D series: Independent Z	X軸*6 Y軸*6 Z軸*6 各自獨立 Independent X Axis、Y Axis、Z Axis
X軸行程	X-Axis Stroke	610 mm (24")	685 mm (27")	610 mm (24")
Y軸行程	Y-Axis Stroke	870 mm (34")	920 mm (36")	940 mm (37")
Z軸行程	Z-Axis Stroke	46 mm (1.8")	46 mm (1.8")	46 mm (1.8")
單軸檯面尺寸	Working Area	558x720 mm (22" x 28")	632x840 mm (25" x 33")	558x720 mm (22" x 28")
XY軸最大移動速度	XY Axis Max. speed	30 M/min	30 M/min	60 M/min
Z軸最大移動速度	Z Axis Max. speed	15 M/min	15 M/min	30 M/min
光學尺解析度	Linear Scale Resolution	0.001 mm (0.04 mil)	0.001 mm (0.04 mil)	0.001 mm (0.04 mil)
主軸	數目	6	6	6
	型式	AEMG / AEMG-L / 多種可選(Option) AEMG HSR-3002(DC) only for plus series	AEMG / AEMG-L / 多種可選(Option)	Ball bearing or Air bearing 可選用(Option)
	功率	1.2 kw	1.2 kw	視主軸選用(Option)
	最大轉速	15000~60000 RPM	15000~60000 RPM	視主軸選用(Option)
精度	成型精度	± 0.03mm (± 1.18 mil)(N series) ± 0.05mm (± 1.97 mil)(D series) (依總格出廠測試標準)(by Sogotec condition)	± 0.03mm (± 1.18 mil)(N series) ± 0.05mm (± 1.97 mil)(D series) (依總格出廠測試標準)(by Sogotec condition)	± 0.03mm (± 1.18 mil) (依總格出廠測試標準)(by Sogotec condition)
	定位精度	± 0.003 mm (± 0.12 mil)	± 0.003 mm (± 0.12 mil)	± 0.003 mm (± 0.12 mil)
	重複精度	± 0.002 mm (± 0.08 mil)	± 0.002 mm (± 0.08 mil)	± 0.002 mm (± 0.08 mil)
	Pin Size	3.175 mm (0.12")、6 mm (0.24")(Option)	3.175 mm (0.12")、6 mm (0.24")(Option)	3.175 mm (0.12")
刀庫數目	Tool Magazine	300 / 20 (Option)	300 / 15 (Option)	300
控制器	Controller	Sieb & Meyer CNC 系列	Sieb & Meyer CNC 系列	Sieb & Meyer CNC 系列
空壓需求	Air Supply	7 Kg/cm ²	7 Kg/cm ²	7 Kg/cm ²
耗風量	Air Consumption	250 L/min	250 L/min	650 L/min
集塵壓力	Dust Pressure	1600 mmAQ	1600 mmAQ	1600 mmAQ
集塵流量	Dust Consumption	4.5 CMM	4.5 CMM	4.5 CMM
電力需求	Power Requirement	3Φ220V 50/60Hz 30A 12KVA	3Φ220V 50/60Hz 30A 15KVA	3Φ220V 50/60Hz 50A 20KVA
本體外型尺寸	Dimension(LxDxH)	4750x2100x2249 mm (B) 187" x 83" x 89" (B)	5150x2335x2260 mm (C) 203" x 92" x 89" (C)	4700x2200x2250 mm 185" x 87" x 89"
總重量	Weight	8500 kg	9200 kg	11000 kg



機型	MODEL	PR-2530/S2 PR-2530/D2	PR-2937/S4 PR-2937/D4	PR-2543/S6	PR-2550/S6
Z軸款式	Z Axis Type	S系列機種：為單獨Z軸 / S series: Single Z Axis D系列機種：為獨立Z軸 / D series: Independent Z	S系列機種：為單獨Z軸 / S series: Single Z Axis D系列機種：為獨立Z軸 / D series: Independent Z	S系列機種：為單獨Z軸 / S series: Single Z Axis	S系列機種：為單獨Z軸 / S series: Single Z Axis
X軸行程	X-Axis Stroke	635 mm (25")	765 mm (30")	635 mm (25")	635 mm (25")
Y軸行程	Y-Axis Stroke	850 mm (33")	1015mm (40")	1175 mm (46")	1380 mm (54")
Z軸行程	Z-Axis Stroke	46 mm (1.8")	46 mm (1.8")	46 mm (1.8")	46 mm (1.8")
單軸檯面尺寸	Working Area	632x770 mm (25" x 30")	762x940 mm (29" x 37")	632x1100 mm (25" x 43")	632x1300 mm (25" x 50")
XY軸最大移動速度	XY Axis Max. speed	30 M/min	24 M/min	24 M/min	24 M/min
Z軸最大移動速度	Z Axis Max. speed	15 M/min	15 M/min	15 M/min	15 M/min
光學尺解析度	Linear Scale Resolution	0.001 mm (0.04 mil)	0.001 mm (0.04 mil)	0.001 mm (0.04 mil)	0.001 mm (0.04 mil)
主軸	數目	2	4	6	6
	型式	AEMG / AEMG-L / 多種可選(Option)	AEMG / AEMG-L / 多種可選(Option)	AEMG / AEMG-L / 多種可選(Option)	AEMG / AEMG-L / 多種可選(Option)
	功率	1.2 kw	1.2 kw	1.2 kw	1.2 kw
	最大轉速	15000~60000 RPM ± 0.05mm (± 1.97 mil) (依總格出廠測試標準)(by Sogotec condition)	15000~60000 RPM ± 0.05mm (± 1.97 mil) (依總格出廠測試標準)(by Sogotec condition)	15000~60000 RPM ± 0.05mm (± 1.97 mil) (依總格出廠測試標準)(by Sogotec condition)	15000~60000 RPM ± 0.05mm (± 1.97 mil) (依總格出廠測試標準)(by Sogotec condition)
精度	成型精度	± 0.003 mm (± 0.12 mil) ± 0.002 mm (± 0.08 mil)	± 0.003 mm (± 0.12 mil) ± 0.002 mm (± 0.08 mil)	± 0.003 mm (± 0.12 mil) ± 0.002 mm (± 0.08 mil)	± 0.003 mm (± 0.12 mil) ± 0.002 mm (± 0.08 mil)
	定位精度	± 0.003 mm (± 0.12 mil)	± 0.003 mm (± 0.12 mil)	± 0.003 mm (± 0.12 mil)	± 0.003 mm (± 0.12 mil)
	重複精度	± 0.002 mm (± 0.08 mil)	± 0.002 mm (± 0.08 mil)	± 0.002 mm (± 0.08 mil)	± 0.002 mm (± 0.08 mil)
	Pin Size	3.175 mm (0.12")、6 mm (0.24")(Option)	3.175 mm (0.12")、6 mm (0.24")(Option)	3.175 mm (0.12")、6 mm (0.24")(Option)	3.175 mm (0.12")、6 mm (0.24")(Option)
刀庫數目	Tool Magazine	10 / 200(Option)	10 / 200(Option)	10 / 200(Option)	10 / 200(Option)
控制器	Controller	Sieb & Meyer CNC 系列	Sieb & Meyer CNC 系列	Sieb & Meyer CNC 系列	Sieb & Meyer CNC 系列
空壓需求	Air Supply	7 Kg/cm ²	7 Kg/cm ²	7 Kg/cm ²	7 Kg/cm ²
耗風量	Air Consumption	200 L/min	220 L/min	250 L/min	250 L/min
集塵壓力	Dust Pressure	1600 mmAQ	1600 mmAQ	1600 mmAQ	1600 mmAQ
集塵流量	Dust Consumption	2.5 CMM	3.5 CMM	4.5 CMM	4.5 CMM
電力需求	Power Requirement	3Φ220V 50/60Hz 5KVA	3Φ220V 50/60Hz 12KVA	3Φ220V 50/60Hz 12KVA	3Φ220V 50/60Hz 15KVA
本體外型尺寸	Dimension(LxDxH)	2375x2100x2070 mm (A) 94" x 83" x 81" (A)	4480x2465x2295 mm 176" x 97" x 90"	5150x2720x2259 mm 187" x 107" x 89"	5250x3200x2258 mm 207" x 126" x 89"
總重量	Weight	3400 kg	8200 kg	11000 kg	11000 kg

本型錄所提供之產品資訊(插圖、照片、規格文字)可能會因設計修改或選配而不同。

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總格精密股份有限公司自1990年創立，專注於精緻化、客製化、智能化、全球化，秉持四大核心理念，持續與客戶開創技術領域，不斷挑戰產品最新製程，2007年加入恩德集團，結合核心技術並擴大市場銷售。

Sogotec Precision Co., Ltd was founded in 1990. We are focuses on Refinement, Customization, Automation, Globalization. In the four ideas, continue to create technological innovation with customers, continue to challenge the latest product process. Since 2007, Anderson Group has M&A Sogotec Precision Co., Ltd. to expand market sales and integrate all aspects of technology.

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