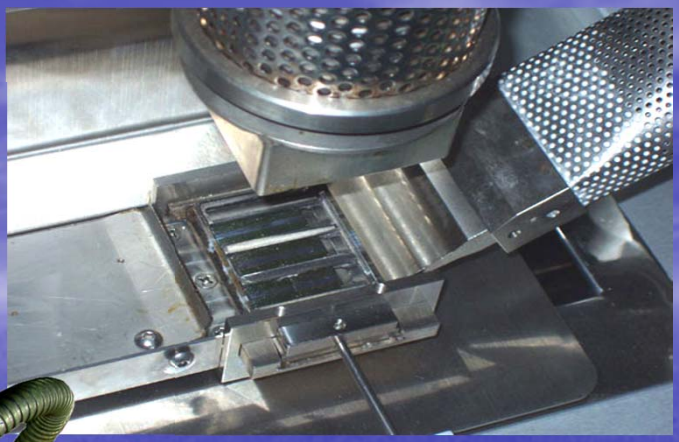
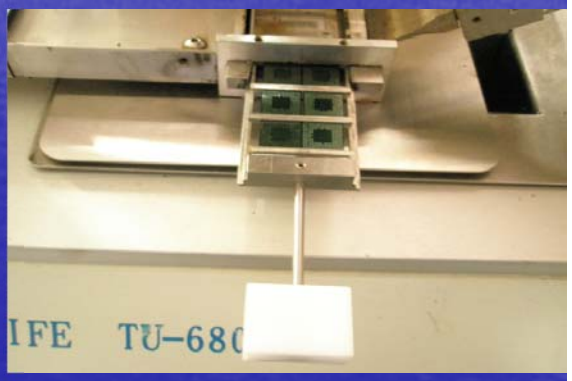
2-除錫製程

除錫設備: TU-680X-除錫風刀

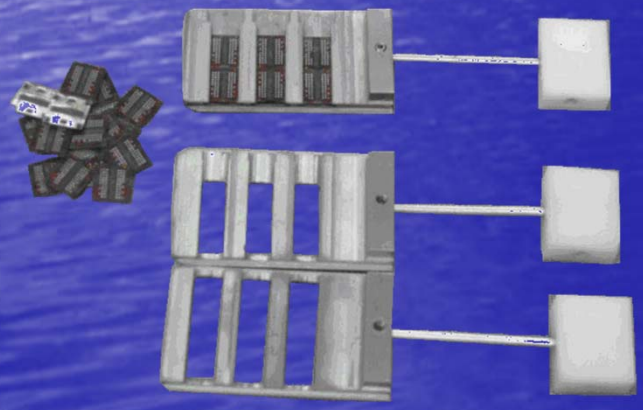
TU-680X-除錫風刀



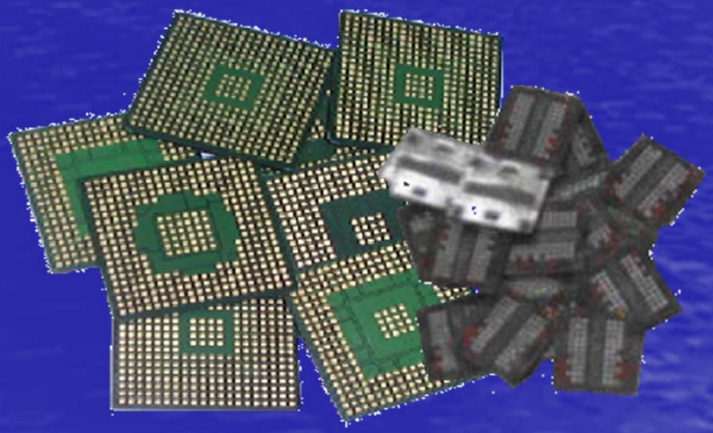
風刀-自動除錫



風刀治具插入槽



風刀治具

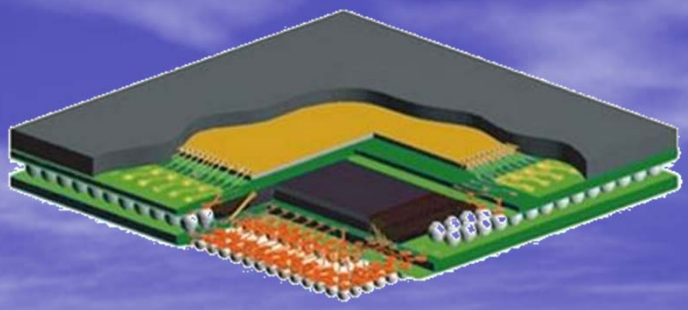


各類-BGAIC除錫　DRAM-IC-除錫

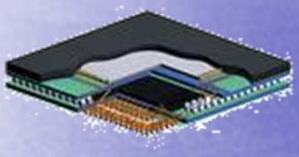
威達誠實業有限公司-技術部提供(2)

組裝在pcb上元件POP

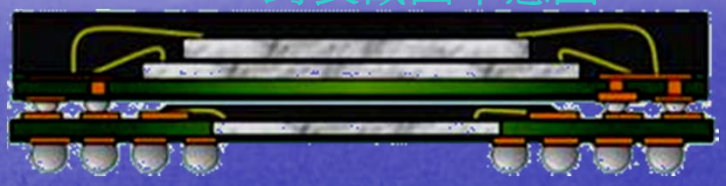
POP堆碟IC組合



POP封裝原理圖

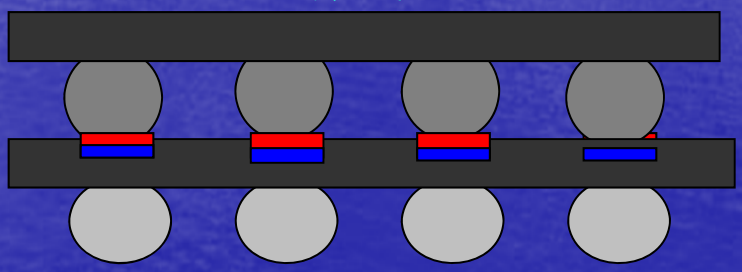


POP封裝截面示意圖

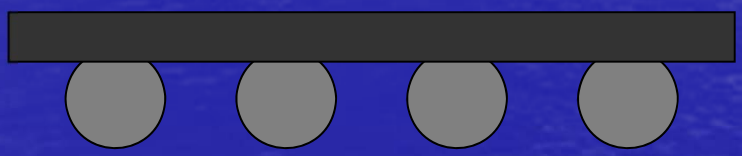


POP截面圖

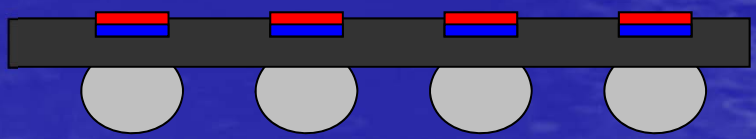
POP封裝示意圖

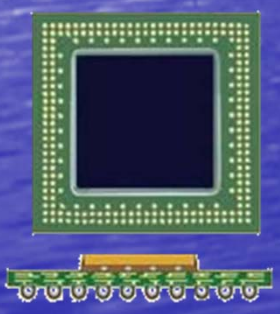


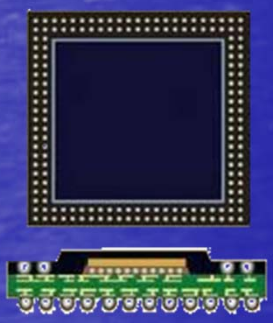
堆碟上層IC



堆碟下層IC

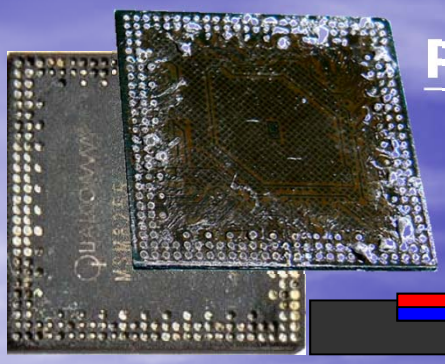






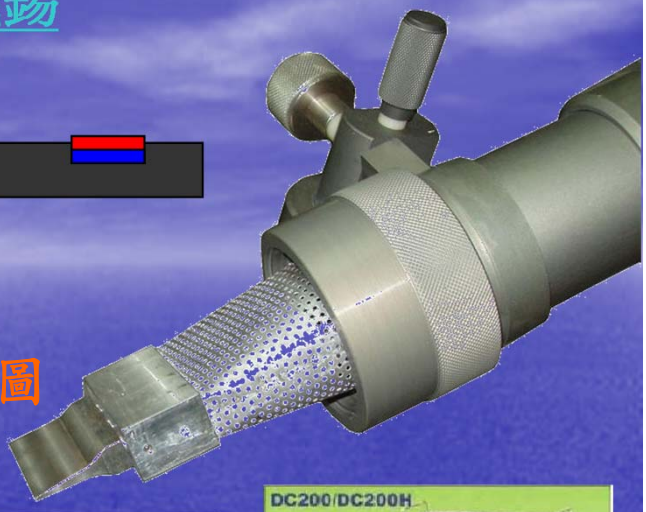
威達誠實業有限公司-技術部提供(2-1)

POP-IC維修SOP製程

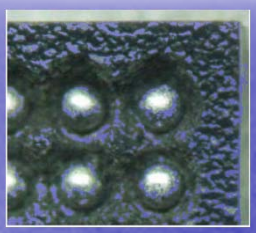


堆碟下層IC上殘錫

風刀除錫

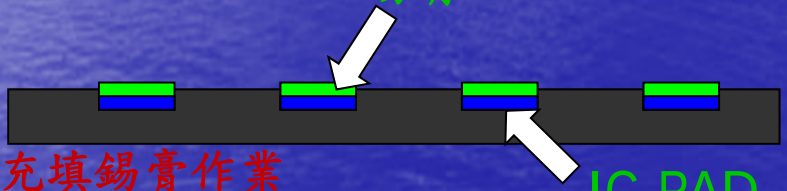


(1)TU-680X風刀除錫徹底清除凹洞殘錫



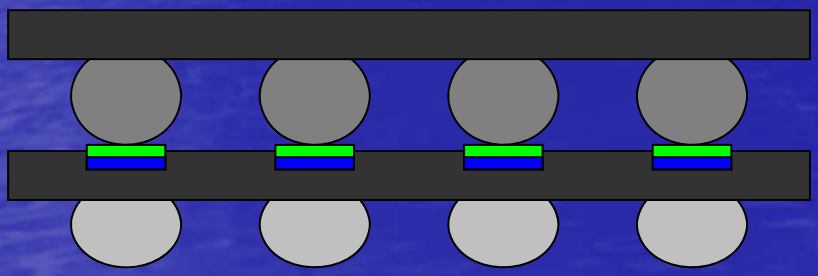
凹槽近照圖

(2)除錫後需經超音波洗淨IC表面錫渣與助焊膏殘留



(3)凹洞印刷充填錫膏作業

(4)上層IC置放PAD點印妥錫膏上組合迴焊



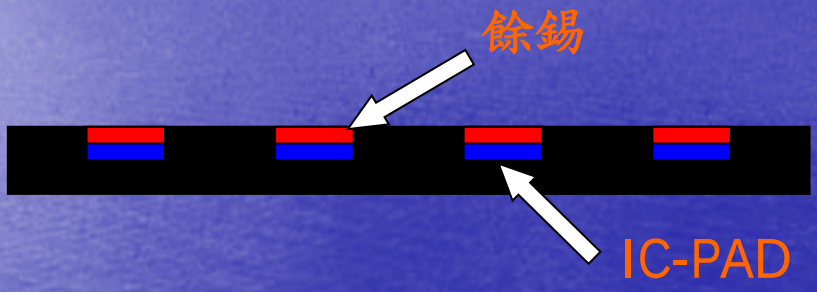
威達誠實業有限公司-技術部提供(2-2)

手工維修POP-IC良率低

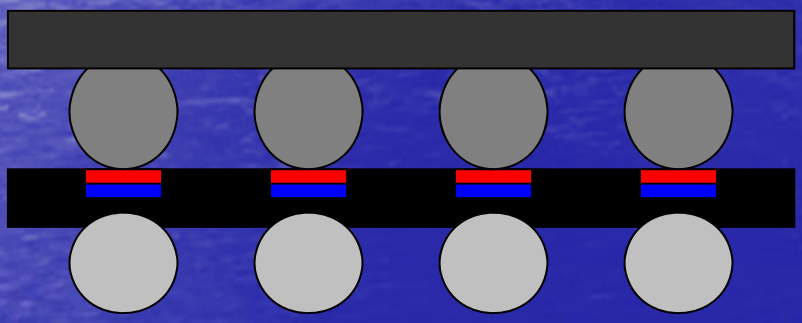
(1)手工除錫

烙鐵.吸錫線除錫易造成左右前後間凹洞崩塌,不完整凹洞左右間迴焊時,易造成短路,手工除錫僅能清除至表面,無法完全清除凹洞中殘錫,凹洞殘錫是已經迴焊過餘錫,熔點會提高,使用餘錫會因再次組合迴焊時,會有因熔點差異,導致拒焊.餘錫亦無法清除後能讓所有PAD點同為一致平整面,也會造成組合迴焊時,有高低落差造成空焊主因,維修良率僅會只有60%~70%~左右.

堆碟下層IC上殘錫



(2)利用餘錫組合迴焊



目前廠商維修POP使用是上述作業模式幾乎維修良率都不高.

TU-680X-除錫風刀

全自動除錫風刀 台灣.大陸專利證書

專利保證

品質精良

效率實用

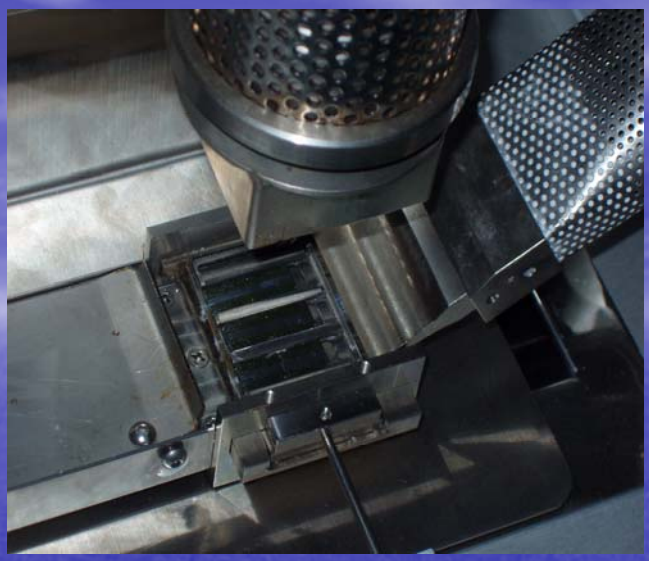
先趨設計

大陸專利　　　台灣專利

威達誠實業有限公司-技術部提供(2-4)

除球最大使用範圍:40mmX40mm

40mm~40mm BGA-IC holding fixtures.



觸控面板控制

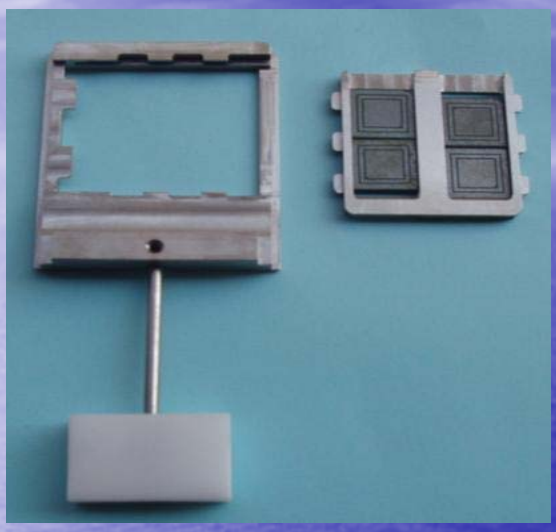
Finger-touch control panel- offering a screen for parameters and conditions setting.

威達誠實業有限公司-技術部提供**(2-5)**

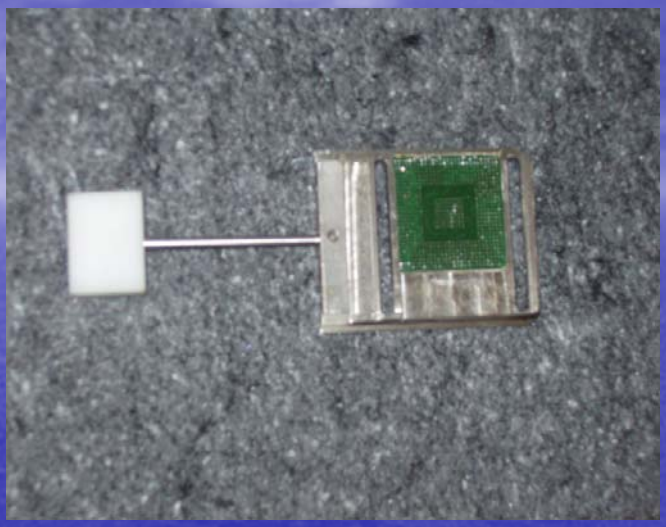
CSP Holding fixture for be-soldering air knife.

風刀治具-14mmX14mm

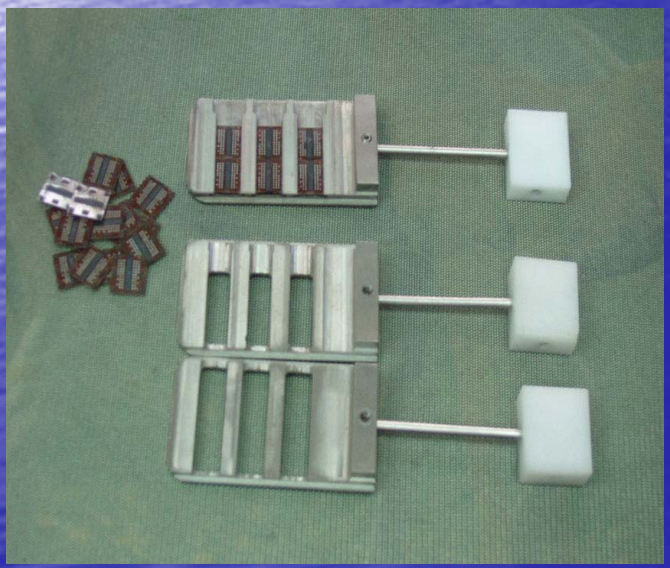
POP-組合式風刀治具



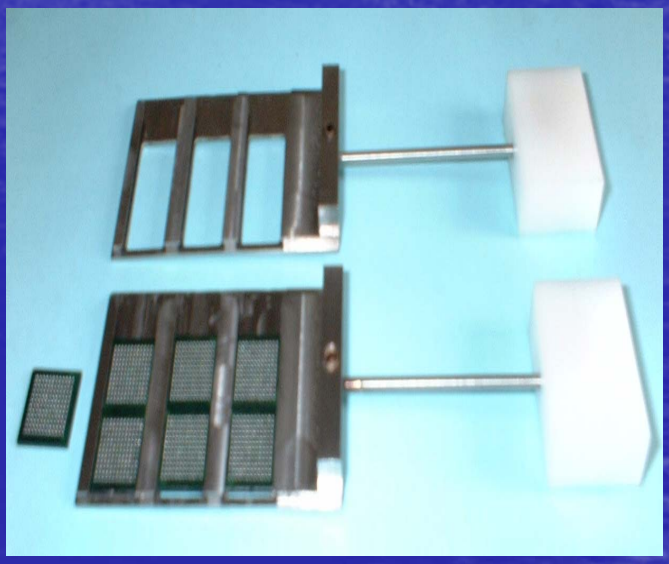
風刀治具-27mmX27mm挾持治具



風刀治具-10mmX10.5mm挾持治具



風刀治具-11mmX16mm挾持治具



威達誠實業有限公司-技術部提供(2-6)

CGF-0802增壓器(選購配備)

實機操作現場-1

實機操作現場-2

威達誠實業有限公司-技術部提供(2-7)

全自動除錫風刀規格

1. 品　名　：全自動除錫風刀
1. Product name: Automatic de-soldering air-knife
2. 型　號　：TU-680X
Model no　: TU-680X
3. 重　量　：55 kg
3. Weight　: 55kg
4.外部尺寸：570cm(L)x 670cm(W)x650cm(H)
4. Outside dimension: 570cm(L)x 670cm(W)x650cm(H)
5.使 用 電 壓：AV110V/50/60HZ
5. Working voltage: AV110V / 220V50/60HZ
6.最大使用電流：18 A
6. Maximum working current : 18A
7.使 用 氣 壓 ：7.5 kg/cm²
7. Working air pressure: 7.5kg/cm²
8.使用規格範圍：27mmx27mm ~ 40mmx40mm
8. Working package range: 27mmx27mm ~ 40mmx40mm
9.清除有效寬度：40mm
9.Effective cleaning length : 40mm
10.清除週期時間：依設定參數值總和爲目前清除時間週期
10 Cleaning cycle time: According to total of all setting parameters.
11.清 除 元 件 ：BGA IC 元件
11.Cleaning part: BGA IC parts.
12. 360°照明燈：6瓦
12. 360°illumination lamp: 6 Watt.
13.風刀流量表(每分28l): 調節範圍0 ~ 5 M3/min(1 LPM =28 l/min)
13.Air-knife flow meter(28 liter/min): Tuning range :0 ~ 5 M3/min(1 LPM =28 l/min)

威達誠實業有限公司-技術部提供(2-8)

全自動除錫風刀特點

Automatic de-soldering air-knife features

1.使用全自動除錫風刀處理B.G.A.表面錫球.錫渣.清除作業,方便,迅速.效率.均符何最佳維修要求.

It is accurate, easier, faster and effective to clean the additional solder ball and solder waste on B.G.A. package to comply with the best rework requirement.

2.人性化螢幕面板設計,觸控參數設定功能鍵,操作簡易.

2.The screen panel design is humanized and the touch-control function keys are easy to use.

本機優點: Advantages of this machine:

1.採人機操作觸控功能鍵執行精密參數設定,精度高,功能強,易操作.

1. By using interactive touch-control screen to perform accurate parameter setting with high precision, powerful function and easy handling.

2.本機使用風刀作錫渣清除作業.

2.The machine cleans the solder waste by using air-knife.

3.清除錫渣本機無傳統吸錫線清錫球作業成本.

3.There is no need and cost of solder-attracting wire of conventional solder ball cleaning operation.

4.清除錫渣採風刀清除方式.

4.The solder waste is cleaned out with using air-knife.

5.本機清除作業採非接觸性清除方式,B.G.A.IC PAD點無翹皮之虞.

5.The cleaning process is a non-contact operation. There is no orry about B.G.A. IC pad warp problem.

威達誠實業有限公司-技術部提供(2-9)

6.採整體性重疊面清除方式確實有效做PAD點錫渣清除作業.

6.It is effective and efficient for solder waste cleaning operation on pad by using overall and overlapping cleaning method.

7.採熱風迴焊熔錫B.G.A.表面PAD點錫球面受熱均勻.

7.The surface of solder ball on pad of B.G.A. is heated uniformly by applying hot air re-flowing in de-soldering process.

8.採 PID微電腦溫控,具自動微調加溫時間及調節溫度曲線寬度功能.

8.By adopting PID temperature controller of microcomputer, there are functions of heating time auto tuning and temperature profile range adjusting.

9.本機參數設定精度達 1/10秒.

9.The precision of parameter setting can be achieved to 1/10 second.

10.當執行作業途中遇氣壓源不足時,本機具瞬間斷電加熱器電源保護系統,防止外在因素造成作業不良,亦可保護加熱器因氣源不足導致散熱不良.造成鎢絲損害或燒毀,並同時停止所有操作功能操作.

10.When insufficient air supply is happened during operation,the power of heater will be cut off immediately as a protection system. The purpose is to prevent mis-operating from external factor or bad heat dissipation of heater which will cause tungsten filament damage or burn out. And in the same time, all operation function will be stopped.

11.當設定不良或操作不良,及外在因素造成溫度過高,任何一組溫控超過設定溫度,瞬間斷電所有加熱器電源,防止元件作業當中造成損害,並保護鎢絲因過熱造成損害或燒毀.

11.For protecting tungsten filament and elements from over-heat damage or burning out, the power of all heater will be cut off when bad setting, bad operation or outside factors cause temperature over the setting value in temperature controller.

12.除錫風刀循環作業流程均以參數值設定,預設值細精度高,可調整設定範圍大,可設定變數選擇多,詳加做最佳設定值追縱紀錄,能追求出最佳設定需求值.

12.All operation procedure of de-soldering air-knife are defined by parameters. The precision is high and the adjustable range is wide and parameter setting selections are many. If the best setting records are traced, there will be a optimum setting value.

13.採用除錫風刀,做除錫動作,可確保元件完整性,每次加熱附予B.G.A.表面受熱數據如出一撤,可信度高.

13.By using air-knife for de-soldering, the package can be kept as undamaged. The heating data of each cycle on B.G.A. surface.

全自動除錫風刀特點：

Automatic de-soldering air-knife features:

1.微電腦PID溫控,自動調整加熱時間與寬度,準確.穩定,溫度補償設定需求值正確,B.G.A.表面溫度受熱溫度保持於215℃要求條件,無過熱之虞.

1.Microcomputer PID temperature controller can automatically precisely and stablely adjust the heating time and range. The temperature compensation setting is correct. The temperature of B.G.A. heating surface can be retain to 215℃ requirement. Don't worry about over-heating.

2.本機採用極爲快速溫度補償型加熱器,以利減少作業時間.

The heater with the fastest temperature compensatory type is adopted in machine for shortening the operation cycle time.

3.利用熱風接觸元件熔錫,熔錫時瞬間風刀清除表面錫球,錫渣,迅速又乾淨.

3.By contacting with hot air, the solder will be melted. Air-knifes clear the solder ball and solder waste cleanly and quickly in the same time.

4.風刀錫球清除作業絕不傷害PAD,無翹皮之慮,確保B.G.A.銅泊點與細微線路的完整性.

4.Clearing solder balls by using air-knife operation will never hurt the solder pad and no worry about warp pad problem. And it ensures no damage between copper foil spot and micro-printed wire of B.G.A.

5.全自動除錫均依設定參數值作業,參數值設定達1/10sec精度,設定廣泛 .

Automatic de-soldering is operated according to pre-defined parameters. The setting value can reach precisionof 1/10 second and the range is wide enough.

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6.無吸錫線成本.

6. There is no investment and need of soldering attracting wire.

7.主加熱器與A,B及C風刀加溫溫度.時間.風刀大小,均以參數設定需求值,執行全自動操作程序.

7. All requirement values, such as main heater strength, air-knife A, B and C heating temperature, heating time and air-knife volume, are defined as parameters for executing automatic operation procedure.

8.作業狀態中,備紅.綠.黃.警示燈,顯示作業訊息.

8.There are red, green and yellow alarm lamps for showing operating information during operation time.

9.可避免傳統烙鐵清除造成作業疏忽.

9.It prevents careless operation caused by conventional soldering iron cleaning method.

傳統烙鐵除錫缺失如下：

The disadvantages of conventional de-soldering operation by using soldering iron are as following.

(一)烙鐵漏電易造成元件電壓迴路破壞,導致晶片損毀.

(1)The electricity leakage of soldering iron is easy to cause electric voltage-circuit of element damaged and destroy the chip.

(二)使用烙鐵與吸錫線除錫,需直接PAD接觸性作業,易發生銅泊翹皮,細B.G.A.細微線路或本體變形.

(2)The direct contacting with solder pad for de-soldering is necessary for using soldering iron or soldering attracting wire. Warp of copper foil and deformation of B.G.A. micro-circuit or body are easy to happen.

(三)B.G.A隨科技發展追求功能強,密度高,由30mil演進至20mil以下,清除上困難度日益不易,使用錫球更小,PAD點相對變小,使用烙鐵除錫,造成翹皮機率更大,乾淨與否甚難判定,採用全自動除錫風刀,以面重疊性清除,無以置疑確保PAD整體面清除乾淨性.

(3)As B.G.A. technology advancing, more powerful and high density function are pursued. It is more difficult on clearing for developing from 30 mils to under 20 mils. Much smaller solder balls are used and solder pads shrink relatively. If solder iron is still used on de-soldering, the opportunity of causing warp pad is increased. And the cleanness is hard to tell. By adopting automatic de-soldering air knife, the cleaning operation will be performed overlapped on surface and there will be no doubt of uncleanness on all solder pads.

(四)烙鐵溫度溫度不一,溫度穩定性低,溫度過高易造成爆板,溫度過低易造成翹皮.

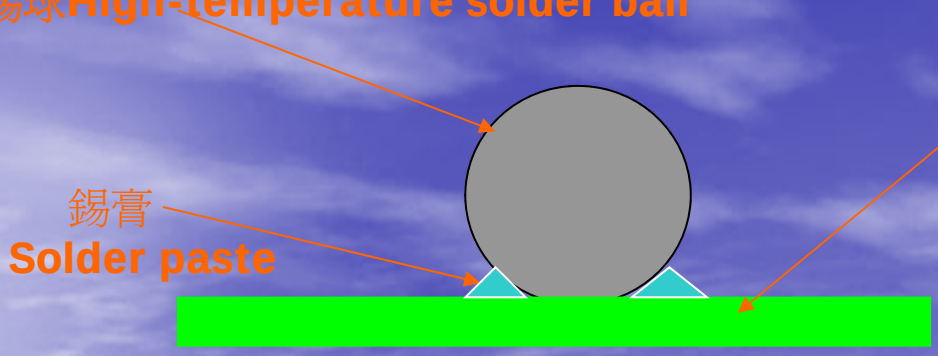
The temperature of soldering iron is not uniform and temperature stability is bad. If temperature is too high, PCB will crack. And if it is too low, warp pad will be happened.

全自動除錫風刀清除程序

(一)B.G.A IC 上是高溫錫球時,欲作清除作業時,禁止使用烙鐵,因烙鐵若將高溫錫球於清除中熔沾附於PAD 上,就很難將沾附高溫錫渣清除,勢必將烙鐵溫度加至310℃高溫錫球熔點,方能清動錫渣,但PAD銅泊無法承受達310℃高溫,很容易翹皮,烙鐵清除高溫錫球,是危險清除動作.

正確清除如圖示:

(1)When high-temperature solder balls are used on B.G.A. IC and de-soldering process is required, usage of soldering iron will be prohibited. Because soldering iron may cause the high-temperature solder ball to be attached on solder pad during cleaning process. If attachment is happened, that will be very difficult to clear high-temperature solder waste away. The only way for cleaning is to increase solder iron temperature to 310℃ which is high-temperature solder ball melting temperature. But the copper foil of solder pad can't stand such high-temperature and it's very easy to warp. So it's a dangerous de-soldering operation by using soldering iron.



使用高溫錫球B.G.A 錫球焊接介質爲錫膏,在清除作業中,僅加熱至錫膏介質熔點,即可將高溫錫球與B.G.A.PAD脫離,禁止烙鐵清除作業,避免將高溫錫球熔沾附PAD點,才不至於造成清除不易或翹皮,採用全自動除錫風刀執行錫球清除作業,表面受熱溫度在215℃設定範圍內作業,溫度不致於將高溫錫球融化,除錫風刀清除可完整且多排清除,亦決不傷害PAD銅泊,自信此維修過程中,可確保錫球清除作業完整性.

When solder paste is used as soldering media for high-temperature solder ball, we only need to heat the paste media to its melting point and get separation between solder ball and B.G.A. pad. It is not allowable by using soldering iron to do cleaning process in order to avoid solder balls being attached on pads and solder pads warping which makes cleaning process more difficult. By introducing the automatic de-soldering air-knife for solder ball cleaning process, temperature of heated ball surface will be controlled to within 215℃setting range and such working temperature won't melt any high-temperature solder ball. So the de-soldering air-knife can totally and efficiently clear the waste and never damage copper-foil pad. We have confidence to assure the solder ball cleaning process is without damage.

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