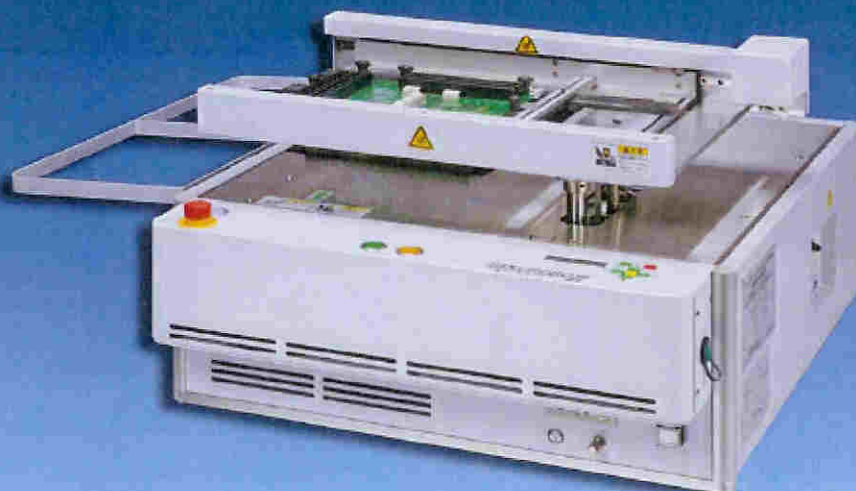


Soldering System for
Add-on Components

TAKUROBO-II

Bench-top Selective
Soldering System



Bench-top Selective Fluxer "SP-ROBO"



**Innovative high-quality soldering robot to replace conventional
"soldering-iron" type robots**

Ultimately miniaturized body and reduced cost

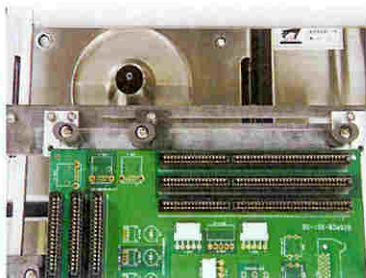
**Plays triple role of high-mix/low-volume production, prototyping
& reworking**

1

Highly-advanced Performance

Controls solder amount
and soldering time
needed for each point
soldered.

Can reduce "heat load"
imposed on PCBs
because of its lower
operating temperature
than "soldering-iron"
method.



2

Easy Program Creation Method

Direct teaching method for soldering program creation is
available in the standard model. Another easy method by
loading Gerber/scanner data is also available as optional.

3

No Jigs Needed

Nozzles of many different tip sizes are available depending on
desired spray patterns. Unnecessity of jigs allows for more
economical productive activities. Machine setup time and
production startup process will be greatly reduced.

• Specifications

Items	ULTIMA-TR-II (Model Name)
PCB Size (MIN)	50(W) × 50(L) mm
PCB Size (MAX)	250(W) × 330(L) mm
PCB Thickness	0.8 - 2.0 mm
Program Steps	100 steps, 100 files
Nozzle Inner Diameter	Ø 2.5, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 12.0, 14.0, 16.0, 20.0 mm (Rectangular rework nozzle available as custom-made)
Solder Capacity	Approx. 16 kg (SG:7.3)
N2 Supply	0.4 - 0.5 MPa 20 ltr/min
Power Source	Single-phase 200V 4KVA
Outer Dimensions	620(W) × 760(L) × 440(H) mm
Weight	Approx. 97 kg (solder included)

Items	ULTIMA-SP (Model Name)
PCB Size (MIN)	50(W) × 50(L) mm
PCB Size (MAX)	250(W) × 330(L) mm
PCB Thickness	0.8 - 2.0 mm
Program Steps	100 steps, 100 files
Flux Tank Capacity	1 ltr.
Nozzle	Dual-fluid / Ultrasonic nozzle
Air Supply	0.4 - 0.5 MPa
Power Source	Single-phase 200V 0.1KVA
Outer Dimensions	630(W) × 640(L) × 365(H) mm
Weight	Approx. 45 kg



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Soldering System for
Add-on Components

MINIROBO

Selective
Soldering System
(All-in-one type)



**All-in-one system capable of “high-mix/low-volume” production
Deals with PCBs of up to the largest sizes**

1

Highly-advanced Performance

Controls solder amount, heat capacity and soldering time needed for each point soldered. Emits heated N₂ from the nozzle outer surface, which enables bridgeless soldering and greatly improves through-hole soldering.



2

Simplifies NC Software Generation Method

Soldering NC program can be automatically generated by importing CAD/Gerber Data for initially designing PCB into the optional exclusive-use software. The user can generate “soldering program” while checking a real image of the processed PCB using the optional “CCD camera teaching system.”

3

No Jigs Needed

Nozzles of many different tip sizes are available depending on desired spray patterns. “Exclusive-use pallets” for tilting carrierless soldering systems are unnecessary so that production cost can be remarkably reduced.

• Specifications

Items	ULTIMA-MINIROBO (Model Name)
PCB Size (MIN)	50(W) × 50(L) mm
PCB Size (MAX)	300(W) × 460(L) mm (ULTIMA-MR-M) 500(W) × 600(L) mm (ULTIMA-MR-XL)
PCB Thickness	1.0 - 2.0 mm
Component Height	50 mm or less (upper side) 5 mm or less (lower side)
Lead Wire Length	3.0 mm or less
PCB Feeding Height	900 ± 20 mm
Solder Capacity	Approx. 8.5 kg (SG:7.3)
N ₂ Supply	0.5 MPa 20 ltr/min
Power Source	Three-phase 200V 7KVA
Outer Dimensions	1510(L) × 1370(W) × 1135(H) mm (ULTIMA-MR-M) 1690(L) × 1670(W) × 1135(H) mm (ULTIMA-MR-XL)
Total Weight	Approx. 750 kg: solder included (ULTIMA-MR-M) Approx. 800 kg: solder included (ULTIMA-MR-XL)



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ESJ CORPORATION

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Soldering System for
Add-on Components

SELROBO

Selective
Soldering System
(Inline type)



“Ultimate Soldering Method” made possible by soldering condition settings on a “component-by-component” basis

1

Productivity improved by “modular design”

A production line with combination of flux spraying unit, PCB preheating unit and selective dipping unit can be built in accordance with the user's production takt time.

3

Simplifies NC Software Generation Method

Soldering NC program can be automatically generated by importing CAD/Gerber Data for initially designing PCB into the optional exclusive-use software.

2

Highly-advanced Performance

Solder amount, heat capacity and soldering time needed for each point soldered can be controlled to realize optimal soldering condition setting. Productivity enhancement is made possible by using the optional “rectangular nozzle” for components of large heat capacity.

4

No Jigs Needed

Nozzles of many different tip sizes are available depending on desired spray patterns. “Exclusive-use pallets” for tilting carrierless soldering systems are unnecessary so that production cost can be remarkably reduced.

● Specifications

SELROBO SPRAYING UNIT	
Items	ULTIMA-SR-S (Model)
PCB Size (MIN)	100(W) × 100(L) mm
PCB Size (MAX)	250(W) × 330(L) mm
PCB Thickness	0.8 - 2.0 mm
Component Height	60 mm or less from PCB upper side 10 mm or less from PCB lower side
Pass Line	900 ± 20 mm
Spraying Method	Two-fluid atomization method
Power Source	Three-phase 200V 2KVA
Outer Dimensions	575(L) × 1300(W) × 1580(H) mm

SELROBO PREHEATING UNIT	
Items	ULTIMA-SR-H (Model)
PCB Size (MIN)	100(W) × 100(L) mm
PCB Size (MAX)	250(W) × 330(L) mm
PCB Thickness	0.8 - 2.0 mm
Component Height	60 mm or less from PCB upper side 10 mm or less from PCB lower side
Pass Line	900 ± 20 mm
Preheater	Carbon Lamp Heater (6 pcs. at bottom)
Power Source	Three-phase 200V 4.5KVA
Outer Dimensions	575(L) × 1300(W) × 1580(H) mm

SELROBO DIPPING UNIT	
Items	ULTIMA-SR-D (Model Name)
PCB Size (MIN)	100(W) × 100(L) mm
PCB Size (MAX)	250(W) × 330(L) mm
PCB Thickness	0.8 - 2.0 mm
Component Height	60 mm or less from PCB upper side 10 mm or less from PCB lower side
Pass Line	900 ± 20 mm
Solder Bath Material	Ferrous casting
Solder Capacity	16 kg
Flowing Method	Selective Solder Flowing with Impeller
Power Source	Three-phase 200V 4.1KVA
Outer Dimensions	575(L) × 1300(W) × 1580(H) mm



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탁상형 point Dip Soldering

『TAKURobo』* 仮称



Vol 1.1



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현장의 요구에 답한다 !

High-Quality Point Dip Soldering

이 방식은 로봇트 솔더에 대응한다.
고품질 납땜 로봇트

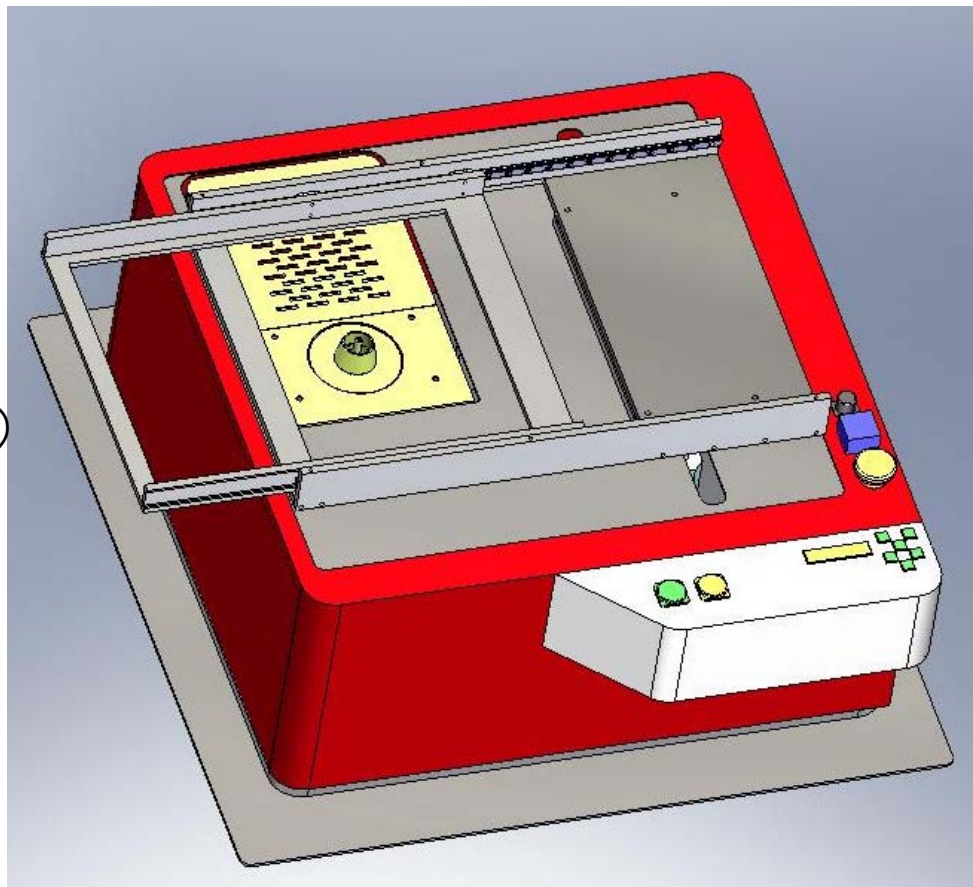
소형화, 저가 실현
포인트Dip 보편화/ 상용화 실현

■ Desk Top 사이즈 600×600(mm)

■ 스루홀up·브릿지의 초난이 부품의
후공정 솔더링

■ 소량다기종생산, 시제품, 수리에
3억실행 1대3억

■ 실생산 line의 긴급 백업





はんだ付けユニット 납땜 유닛(unit)

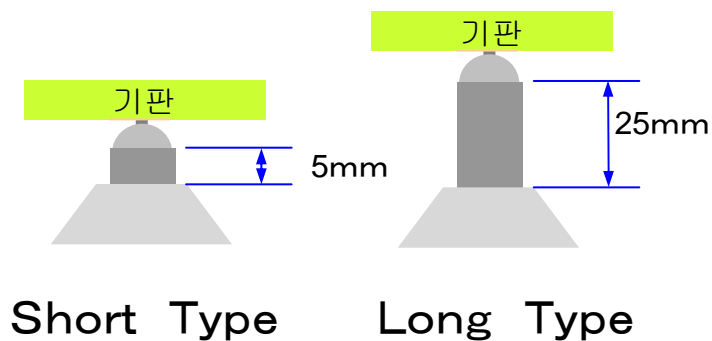


N2가열 heat에 고품질의 point 납땜을 실현했다.



- 인접 부품, 납면 부품에 대응
 - 납 노즐 내경 $\phi 3\text{mm} \sim 10\text{mm}$
 - 노즐 길이는 2가지 형태
- 납 설정 온도 Max 350°C
- N2가열시 Max 450°C

노즐의 유형·클리어런스



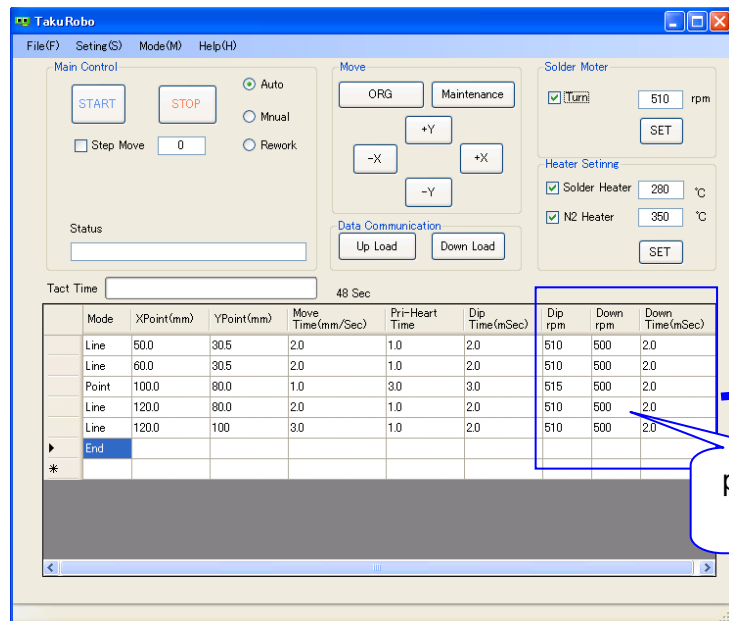


制御アプリケーション

제어 어플리케이션 (application)



분출 control로 고품질의 point 납땜을 실현했습니다.



parameter

분출 control

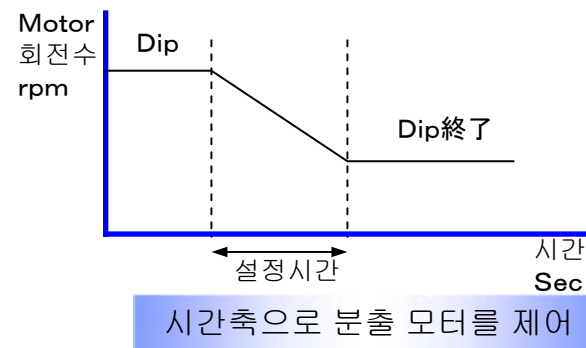


Dip rpm	Down rpm	Down Time(mSec)
520	500	2.0
520	500	2.0
525	500	2.0

Dip시의 분출

Dip종료시의 분출

제어설정 시간



■ 분출 control식 납땜 방식

■ PC로 간단하게 data 수정, 관리 가능함.

■ 거버 & 스캐너 데이터로 간단한 teaching 소프트웨어 (옵션)



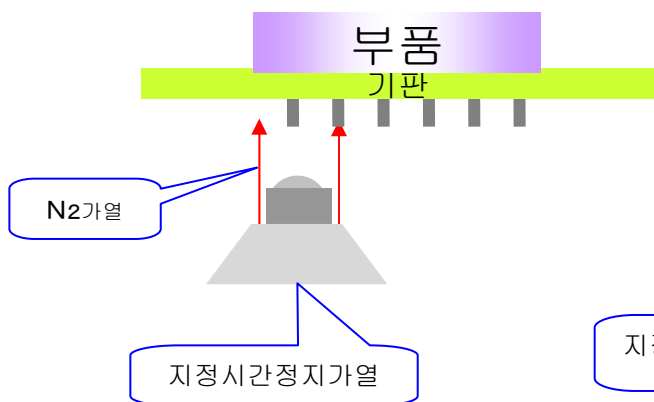
制御アプリケーション

제어 어플리케이션 (application)

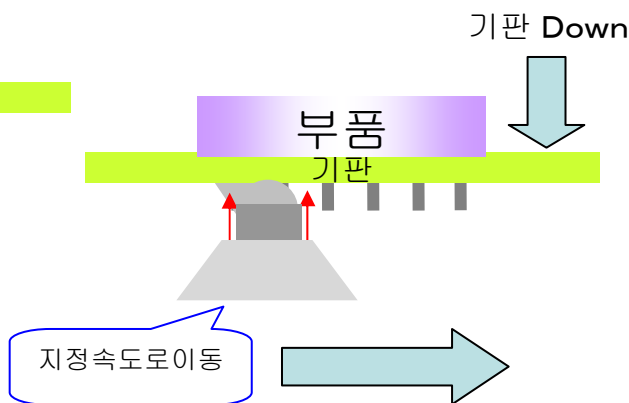
■ 납땜 motor

▪ Line Dip Mode

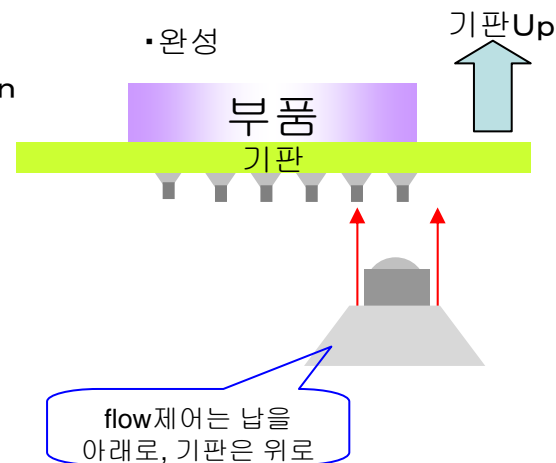
▪ 예비 가열 동작



▪ 납땜

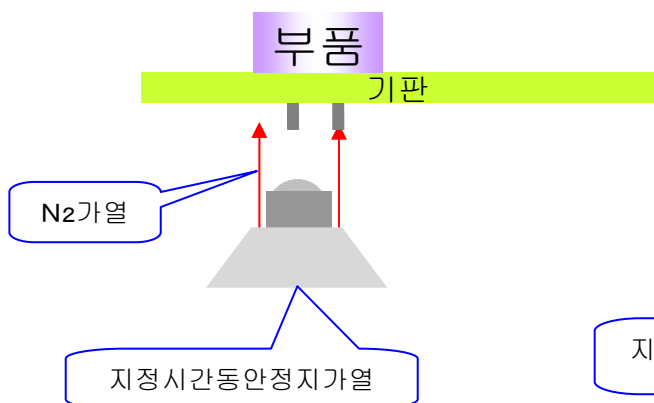


▪ 완성

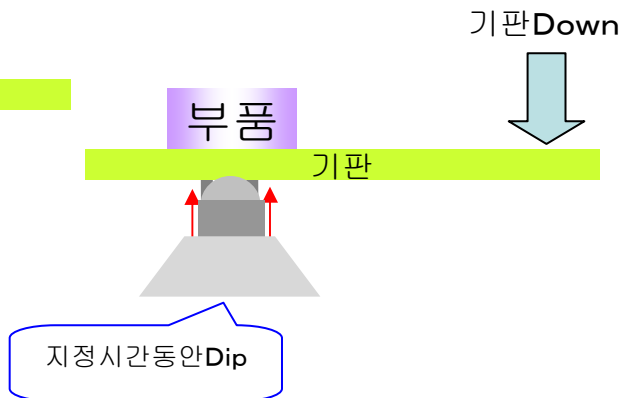


▪ Point Dip Mode

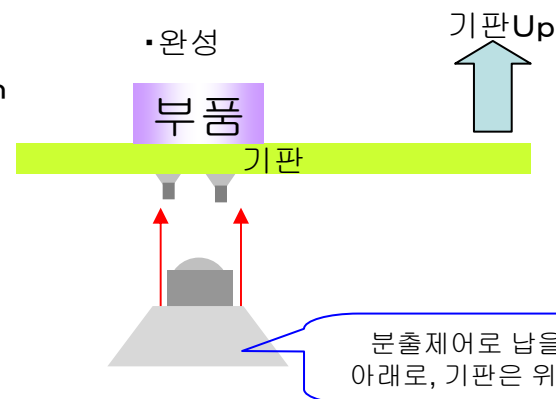
▪ 예비가열동작



▪ 납땜(납도포)



▪ 완성



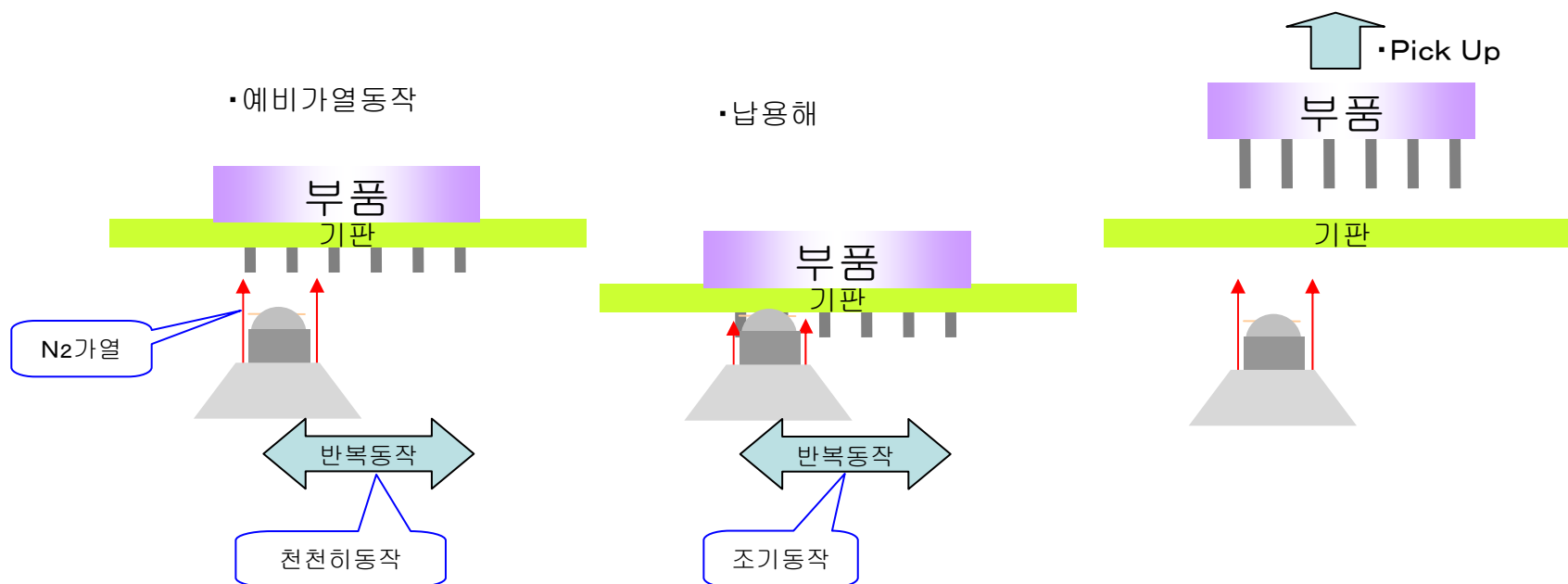


制御アプリケーション

제어 어플리케이션 (application)

수리에 대응

•Rework Mode





주요 사양

- 장치 사이즈 폭:600 전장:600 전고:350(mm) * 조작부 제외
- 적용 기판 사이즈:Max W250×L330(mm) Min W50×L50(mm)
- 적용 기판 두께:0.8~2mm
- 적용 기판 중량:~2kg
- 납조
 - 납용량 8Kg
 - heater 200V-350W×6(2.1Kw)
- N₂ 가열 unit
 - heater 200V 1300W N₂류량 20ℓ/min
- 프로그램 용량 100개 입력 (step)
- Windows application, software
- 통신용 USB interface 1ch (1채널)



옵션

■ 거버/스캐너 데이터 작성 software

■ PC

■ 납땜 Empty Sensor

■ 주간 타이머 (weekly timer)

■ USB monitor camera

■ 기판 휨 방지 치구

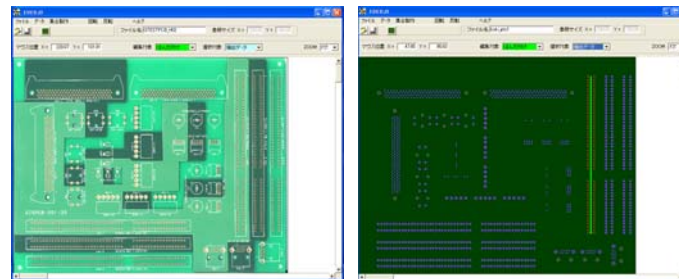
■ 수리 kit

주변기기

■ N₂발생 장치 (소형/ mn4-20, 20nl/min)

■ printer 장치 (일괄방식)

■ Fulx장치 (일괄방식)



Data 作成ソフト