Pulse Heat Unit Series

NIPPON AVIONICS CO., LTD

Outline of Avio Pulse Heat Unit (Hot Bar Soldering Equipment)

Pulse heat unit from Nippon Avionics Co., Ltd. has been used over the years for various applications, including soldering in manufacturing of electronic equipment or electronic components, ACF bonding, plastic welding and thermo-compression bonding

In the recent years, improvement of both the function and the performance of mobile devices and other electronic equipment are being accelerated. While the parts are getting smaller and higher in performance, technology to mount parts in high density is becoming very important. Among other things, soldering, which is the key technology in parts manufacturing and assembly, is expected to cope with fine pattern and high reliability.

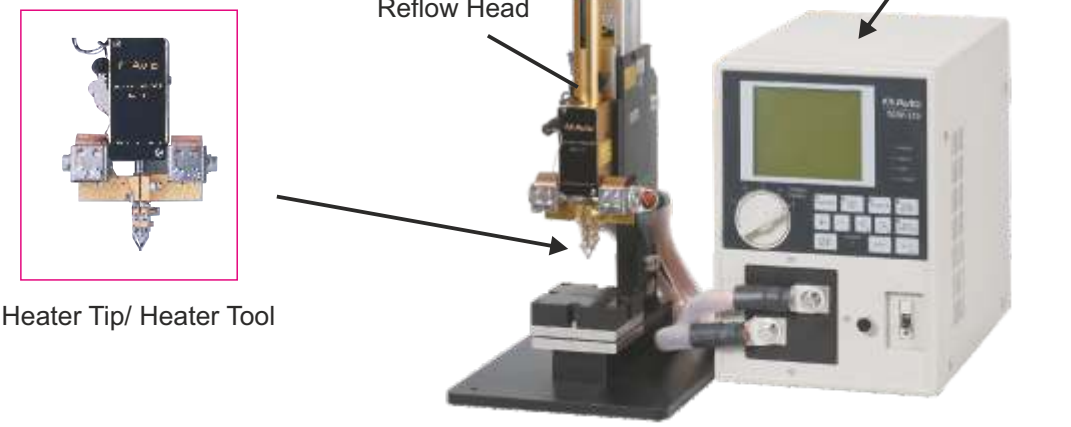
We are offering suitable micro-joining solutions in a timely manner to satisfy the needs of the customer in the manufacturing industry where technical innovation is remarkable.

What is Pulse Heat Unit ?

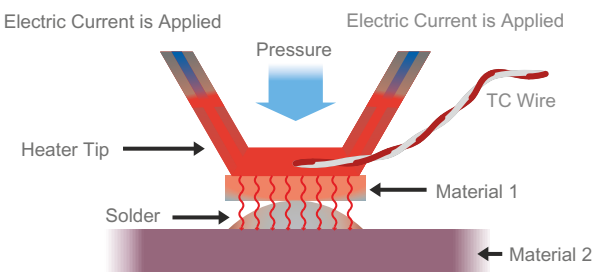
Pulse Heat Unit is an equipment used for soldering of electronic components or welding of plastic components. It consists of a reflow head, which holds down the component and applies the force, and a pulse heat power supply, which flows the electric current.
Pulse heat is an instantaneous heating method whereby heating is effected only when melting the solder or the plastic. Solder or plastic is melted by the resistance heat generated by flowing electric current to a heater tip/heater tool made of metal. Once the material is melted, electric current is stopped and cooled.
Because the object is held down with pressure until it is solidified, there is no lifting or shifting of parts, and as a result, highly reliable joining can be achieved.

Basic Configuration of Pulse Heat Unit and role of each part

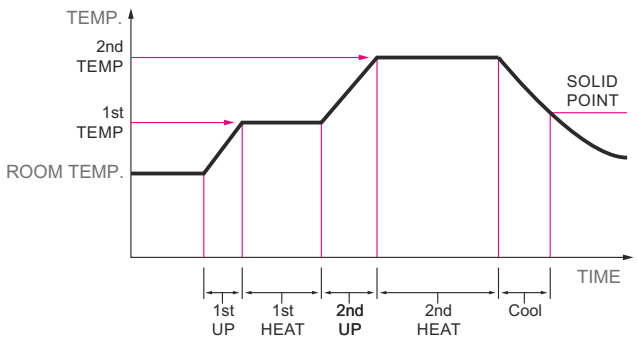
The object to be joined is held down and the electric current flows while the pressure is applied, and a heat is generated by resistance heating.



Pulse Heat Unit Model



Temperature Profile



General Purpose Type Pulse Heat Power Supply

The Best Seller Power Supply Unit Suitable for Soldering, Thermo-Compression Bonding and Heat-Fusing!

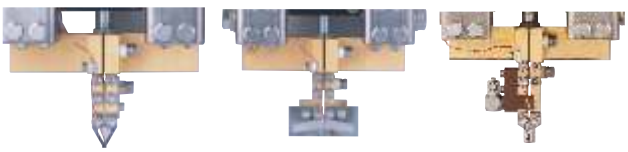
General Purpose Type TCW-315

Items	TCW-315
Heating Temp	Room temp～600℃ 1℃ step E, J type Room temp～900℃ K type (option)
Heating Time	000-999 (×100ms, ×10ms)
Rating Power	750VA – 3KVA
Transformer	Built-in
Tap Voltage	0.88V, 1.24V, 1.75V, 2.47V, 3.5V
Power Source	1φ、AC200V～230V±10%
Dimension/Weight	W200×D320×H283mm≒19.5kg

- **High Reliability Joining**
  Because heating and cooling take place while the pressure is being applied, the work position will not be shifted during joining
- **Variable Temperature Profile**
  Because the heating is local and instantaneous, thermal impact to the peripheral components is restrained
- **High Reproducibility**
  Digital PID control enables good reproducibility of temperature and time. As a result, no skill of the operator is required
- **Pb Free Compatible**
  Pb free solder is accommodated by setting to high temperature and long heating time
- **User Interface**
  RS-232C&I/O is standard equipped, making the unit easy to be connected to external equipment such as incorporating into an automated system
- **Ample Monitoring Functions**
  Temperature monitoring: Upper and lower limit (average, peak), Profile detection error: Over-heat, Thermocouple disconnection, etc
- **Other Standard Functions**
  Number of stored settings: 15, Head vertical and cooling air control signal, Auxiliary thermocouple input, Counter function

Best Suitable for a Precise Joining & Automation!

Shank and Tool for NA-111/NA-112



- Because of the vertical direct force application Mechanism, there is no neflection by the applied force
- Long life is realized by use of a photo sensor

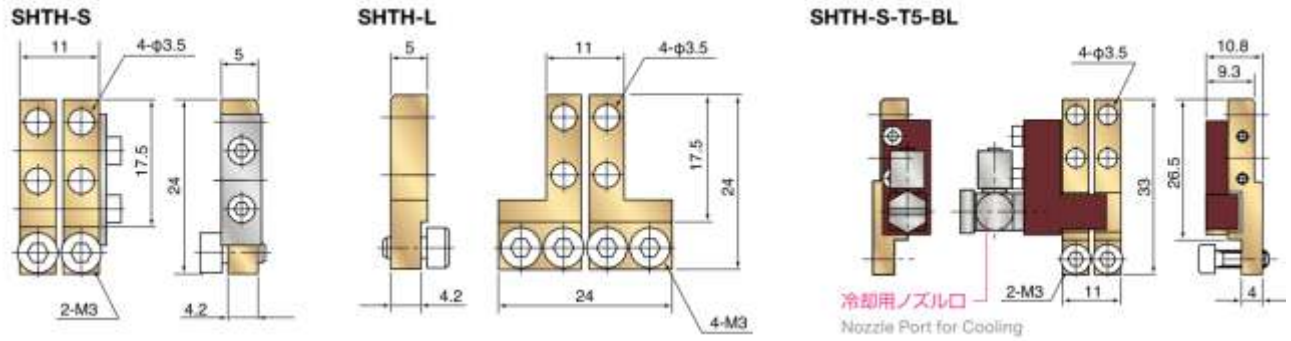
Shank and Tool for NA-151/NA-152/NA-153

- Privides with air cooling port and leveling function

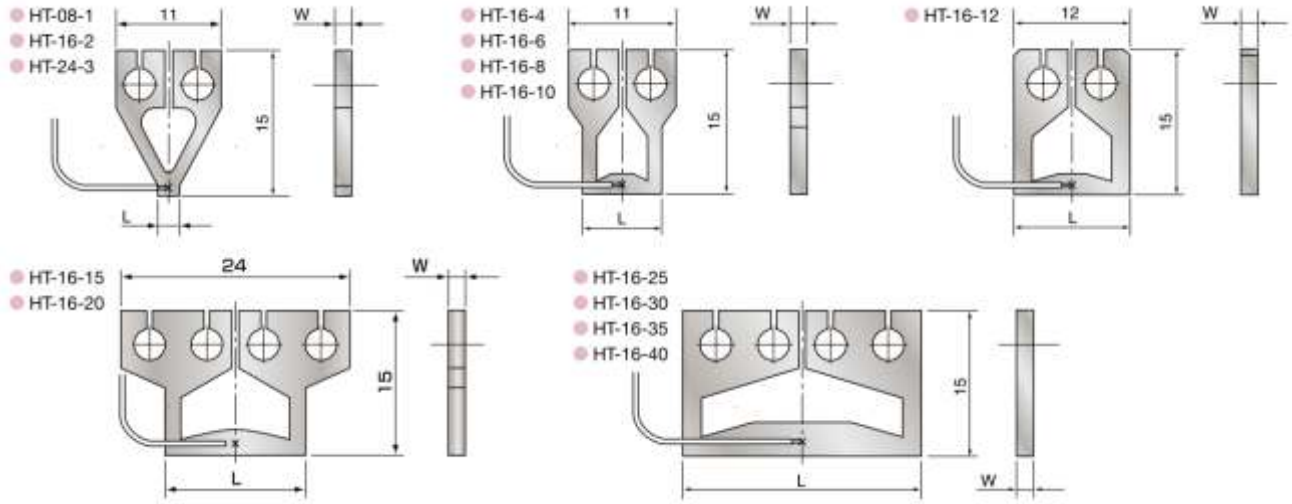
Items	NA-111	NA-112	NA-151	NA-152	NA-153
Pressure Range	0.7 - 5N	5 - 65N	1.2-7N	5-70N	20-150N
Pressure Method	Spring				
Stroke	It's up to Drive Unit				
Drive Method	Motor (NA-201, 201P), Air (NA-221) Manual (NA-231)				
Dimension	W106×D48×H287mm	W106×D48×H285mm	W124×D54.8×H298mm		
Weight	0.6kg	0.6kg	1kg		

Heater Tips

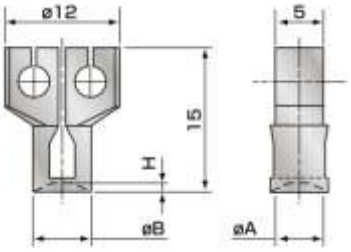
Shank for System Head Series



Standard Heater Tip: HT- W(plate thickness)- L(tip length)



Heater Tip for Fusing Unit

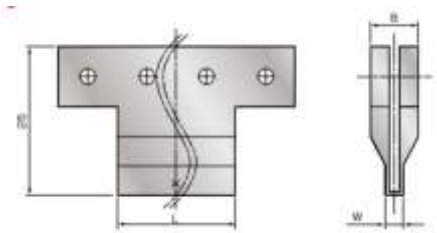


Heater Tip Dimension and Guideline for Boss Size

	Dimension(mm)			Volume(mm³)	Guideline for Boss Size (mm)	
	φA	φB	H		φB	H
CHT-20	2.0	3.0	0.38	0.62	0.7	1.8
CHT-30	3.0	4.0	0.57	2.11	1.2	2.1
CHT-40	4.0	5.0	0.76	5.02	1.7	2.5
CHT-50	5.0	6.0	0.95	9.78	2.3	2.6
CHT-60	6.0	7.0	1.15	17.10	2.9	2.8

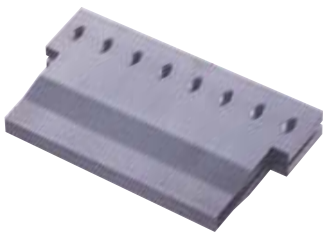
Sizes or material of heater tip other than the above are available on custom order basis
Multi-point simultaneous heater tip is available on custom order basis

Heater Tool



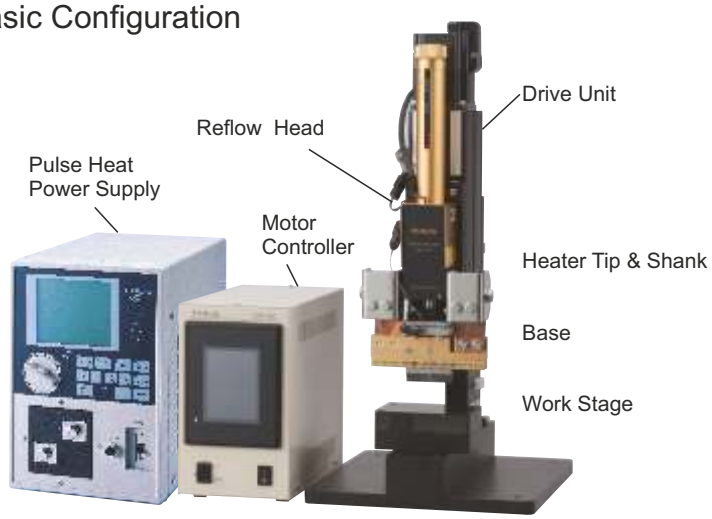
This type tool is customized item

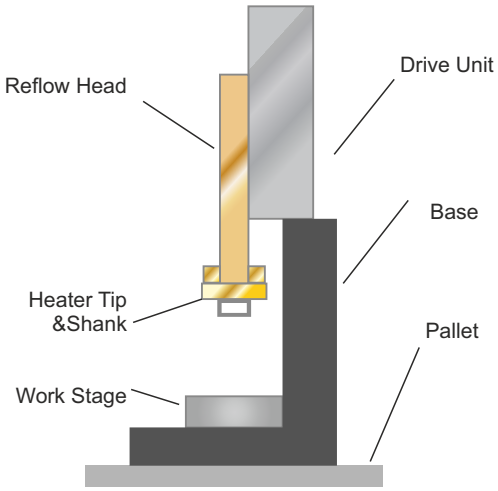
W(tip thickness) x L (tip length)
W: 1,5mm or more



System Head Accessory

System Head
Basic Configuration





Base and Stage

Base NA-301
NA-302P

Leveling Stage 11X-BS-F

Stage 11X-BS

XYT Stage 11X-BS-F-MM

Heater Stage 11X-B-H

Weld Cable

Length: 100mm Step Terminal Shape: D, L, DP

Ex：SFC - 60 - 500 - DD - 99

Material: SFC, WRC, FMC, EFC Hole Size: 7, 9mm

Square: 22, 60, 66, 120mmSQ

Microscope Set and Pallet

Microscope,
Microscope Mounting
LED Light
S-SMS,
S-SMS-MS,
S-SMS-LED

Pallet
S-MP
S302-MP

Motor Drive, Air Drive and Manual Drive

Motor Drive & Controller

Touch Panel Display

CNT-320A

NA-201P

NA202P

CNT-310

NA-201

- Motor drive with 1μm resolution supports precise welding
- It is equipped with a pressure stability function to keep the pressure stable and to improve the quality of welding
- It reduces pressure damage by using a position control function during welding
- It reduces heat damage by using high pressure/low temperature welding processes with a max. 300 N force (When NA-202P is used)
- It provides intuitive operation by colour touch panel and lever jog switch
- Soft-landing process with a slow moving speed of 0.1mm/sec is provided
- Seven operation conditions can be saved

Items	CNT-320A & NA-201P/NA-202P	CNT-310 & NA-201
Drive Method	Motor	
Stroke	Max 50 mm, 1μm Step	Max 50 mm, 10μm Step
Power Source	DC24V±10% 4A (Option : AC Adapter AC100~240V)	DC24V±10% 2A (Option : AC Adapter AC100~240V)
Dimension/Weight	CNT-320A: W120×D230×H207mm // 3kg NA-201P: W52.5×D78.5×H276.1mm // 2kg NA-202P: W69×D99.5×H336.3mm // 4.2kg	CNT-310: W80×D211×H188mm // 2kg NA-201: W50×D82.5×H320mm // 2kg

Air Drive

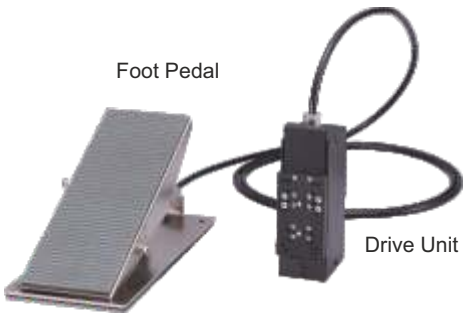
Speed Controller

Air Cylinder

Drive Unit

NA-221, NA-222

Manual Drive



Foot Pedal

Drive Unit

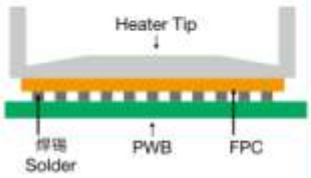
NA-231

Items	NA-221	NA-222	NA-231
Drive Method	Air	Air	Manual by Foot Pedal
Stroke	Max 50mm	Max 50mm	Max 10mm
Speed Control	with Speed Controller (Φ4mm Tube)	with Speed Controller (Φ6mm Tube)	Range 40mm
Air Pressure	0.4 - 0.6MPa	0.4 - 0.6MPa	—
Dimension/Weight	W78×D83×H280mm ≒1.3kg	W86×D85×H289mm ≒2.2kg	Drive Unit ⇒ W51×D79×H192mm // 1kg Foot Pedal ⇒ W124×D268×H125mm // 2.2kg

Applications

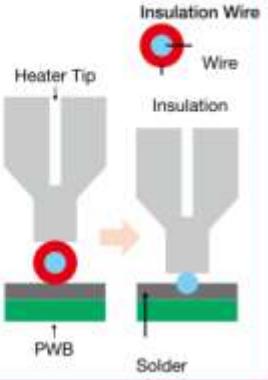
FPC＋PWB Reflow Soldering

FPC(Flexible Printed Circuits)

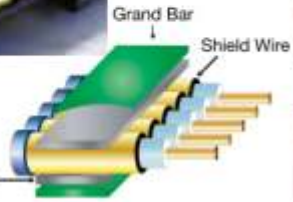


PWB (Printed Wiring Board)

Insulation Wire＋PWB Reflow Soldering



Co-axial Cable /Grand Bar＋Wire Reflow Soldering

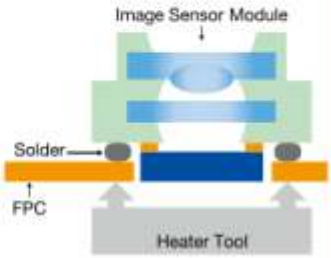


Heater Tool

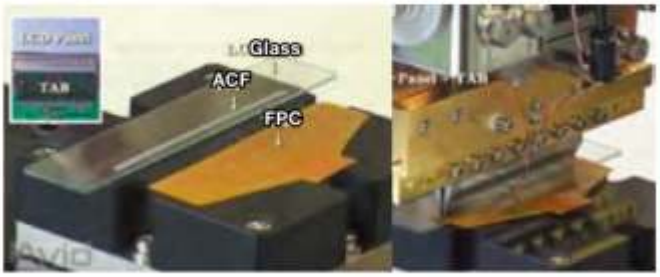
Solar Battery Module Assembly Reflow Soldering

Camera Module Assembly Reflow Soldering

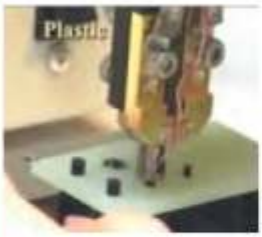
Image Sensor Module

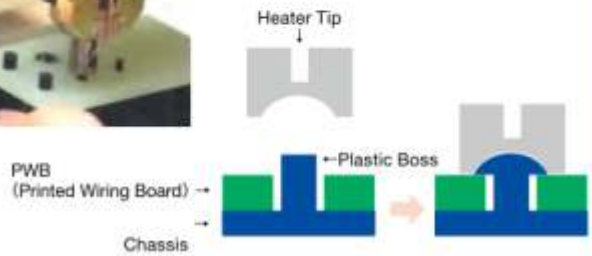


ACF(Glass＋FPC) Thermal Compression Bonding

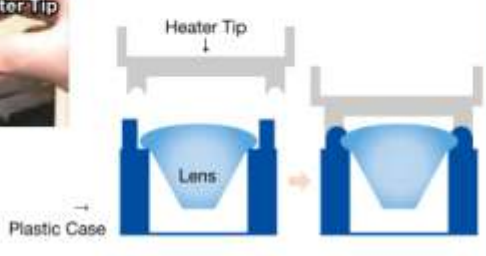


Plastic Parts Fabrication (PWB) Pulse Heat Fusing





Plastic Parts Fabrication (Lens) Pulse Heat Fusing



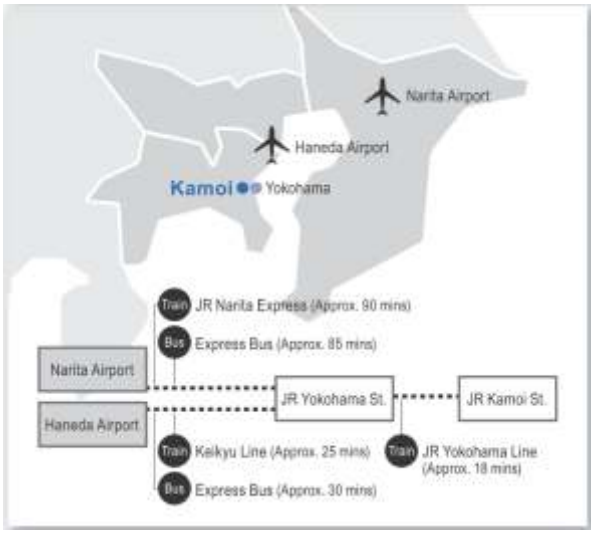
Contact and Service

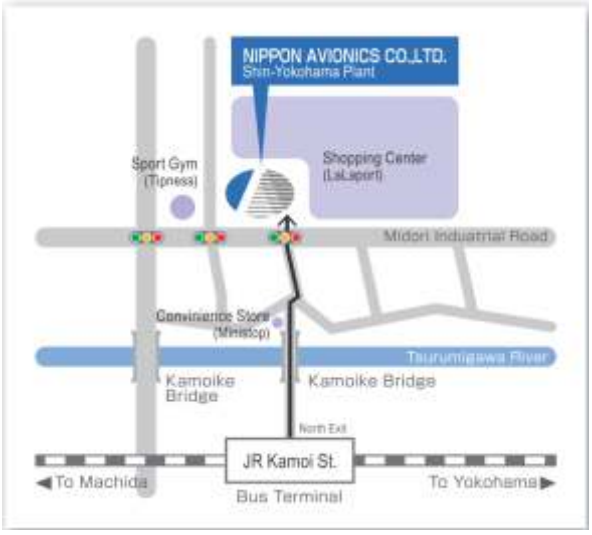
Evaluation Laboratory

Nippon Avionics Co., Ltd. Shin-Yokohama Plant
Address: 4206, Ikonobe-cho, Tsuzuki-ku, Yokohama,
224-0053, JAPAN

Direction

7 minutes on foot from JR Kamoi Station





⚠CAUTION

To operate a unit correctly, read the operation manual carefully. The unit should be situated away from the place filled with water, moisture, steam, dust or soot, which may cause a fire, an electric shock, troubles etc.

The appearance and specifications are subject to change without notice.

NIPPON AVIONICS CO.,LTD.
Welding Products Division
Sales Department
4206, Ikonobe-cho, Tsuzuki-ku, Yokohama,
224-0053, Japan
TEL +81-45-930-3596
FAX +81-45-930-3597
URL http://www.avio.co.jp/

Printed in Japan
CAT.NO.410-275-CE 1506-15-CO^{RV1}

Ihr Ansprechpartner

autorisierter Vertriebspartner für Deutschland
ATN Automatisierungstechnik Niemeier GmbH

Segelfliegerdamm 94-98
D-12487 Berlin, Germany
Tel.: ++49 30 565 9095-0
Fax: ++49 30 565 9095-60
mail: info@atn-berlin.de
web: www.atn-berlin.de