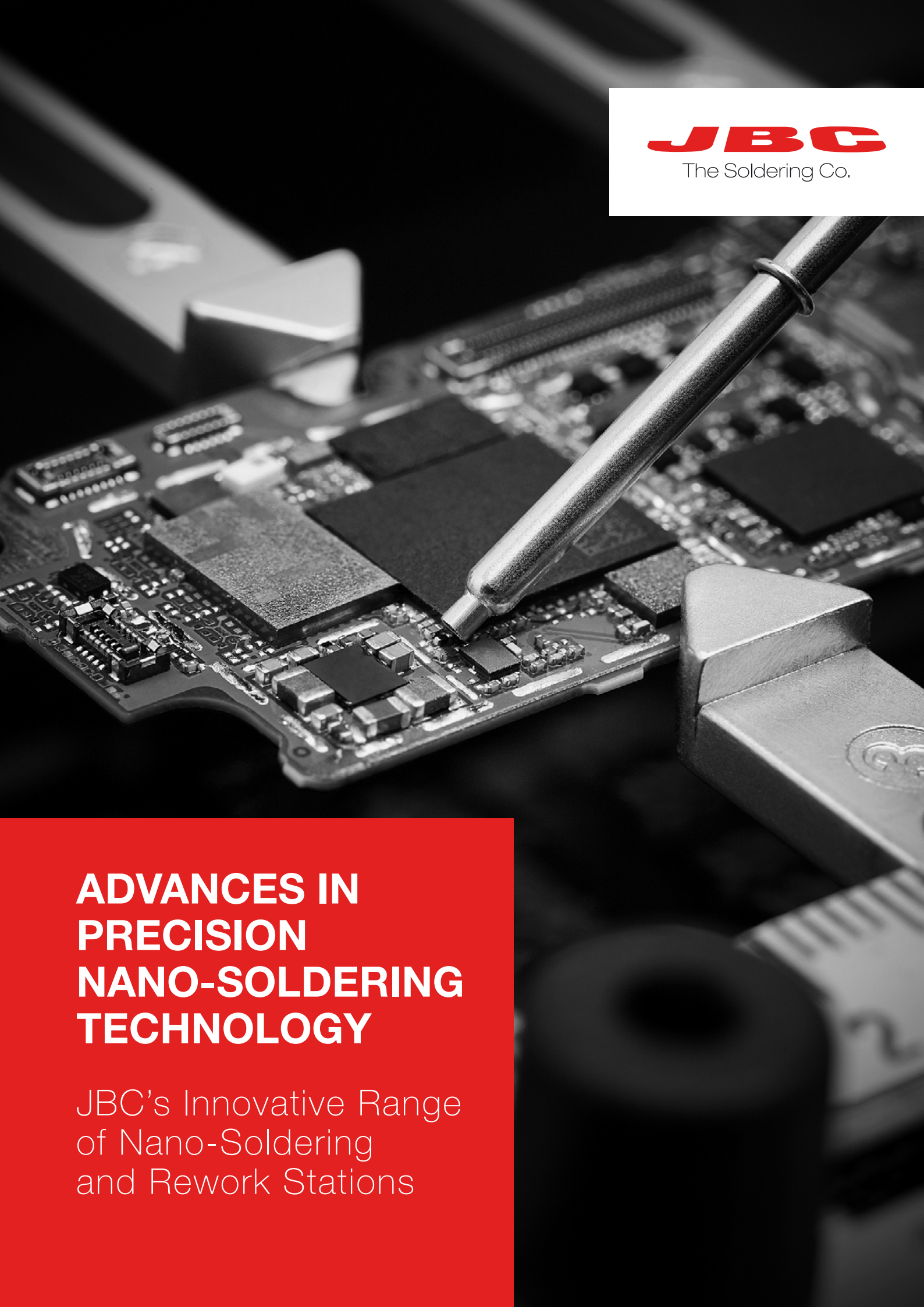
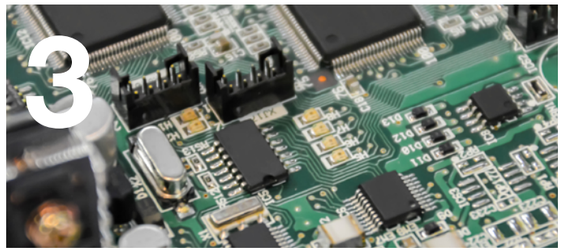


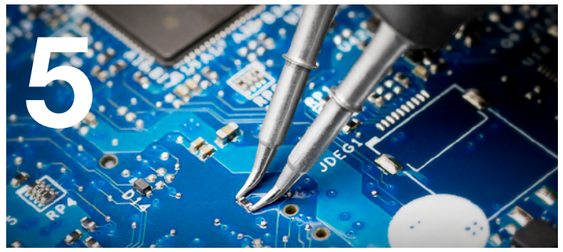
JBC
The Soldering Co.

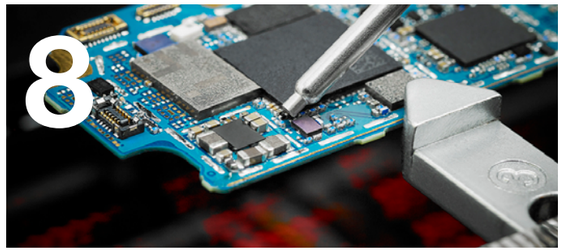
ADVANCES IN PRECISION NANO-SOLDERING TECHNOLOGY

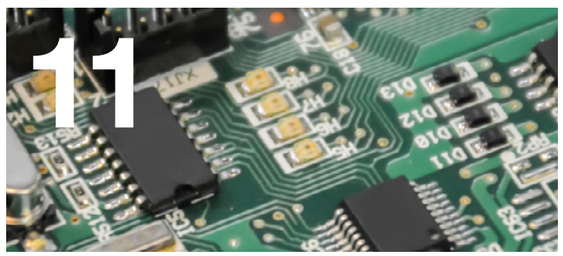
JBC's Innovative Range of Nano-Soldering and Rework Stations

Contents









The need for precision soldering

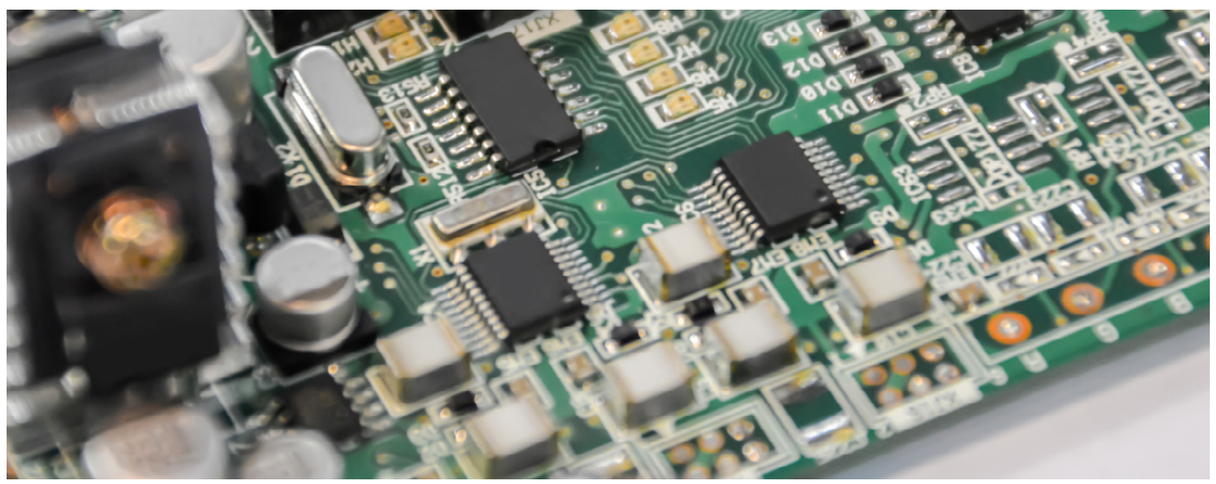
As demand for lighter, faster and smarter electrical devices continues to grow, electronic components are getting smaller and smaller.

With this relentless drive for miniaturisation comes the need for high precision soldering as manufacturers and assemblers rise to the challenge of attaching miniature electronic devices and components onto high-density printed circuit boards (PCBs).

JBC is a family company based in Barcelona with over 90 years of experience serving clients worldwide. It offers a wide range of innovative, efficient and reliable soldering solutions developed to satisfy the most demanding customer requirements.

JBC's innovative range of Nano Stations is designed specifically to facilitate the rapid placement, precision hand soldering and easy reworking of ultra-miniature components onto the surface of a PCB. The Nano Stations incorporate a host of innovative features to ensure an exceptionally efficient soldering solutions, including:

- JBC Exclusive Heating System to rapidly optimise thermal transfer. This innovation helps increase work efficiency while allowing the operator to perform tasks at a lower solder temperature to

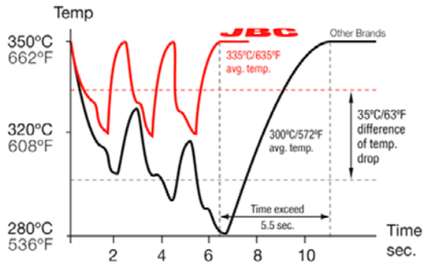


help reduce risk of damage to components or the PCB.

- Quick Cartridge Extractor to enable solder tips to be swapped without the need for special tools and without having to switch the station off. This feature helps maximise productivity and enhances safety.

- Sleep Mode to lower the tool's tip-temperature when not in use. The tool is automatically put into Sleep Mode when placed in its stand, lowering its tip temperature below the melting point of solder. After a further period of inactivity the power supply is cut automatically putting the tool into Hibernation Mode. The Sleep and Hibernation Modes can help extend tip-life by a factor of five.

Exclusive Heating System



The NASE and NANE Stations both feature JBC Exclusive Heating System to ensure the maximum stability at the tool tip. This enables operators to deliver high quality soldering with minimal risk of damage to the component through thermo-shock or the application of excessive soldering temperatures.

Tools are designed to be lightweight with the heating element located close to the tip. The heater incorporates a fully-integrated thermal sensor to provide accurate and virtually instantaneous temperature readings. This ensures that as soon as the operator touches the PCB with the soldering iron's heated tip, the sensor instantly registers a temperature drop and instructs the station to deliver power to the heater.

Without the benefit of JBC Exclusive Heating System, conventional tips have a much slower response time. As a consequence, if a series of soldered connections are made one-after-the-other, tip temperature is unlikely to fully recover between connections, resulting in poor quality cold-soldered connections. To compensate for this, an operator will often run a conventional tip at a higher temperature. This can shorten the tip life and may even damage the PCB or the component being soldered - see graph.

Intelligent Heat Management

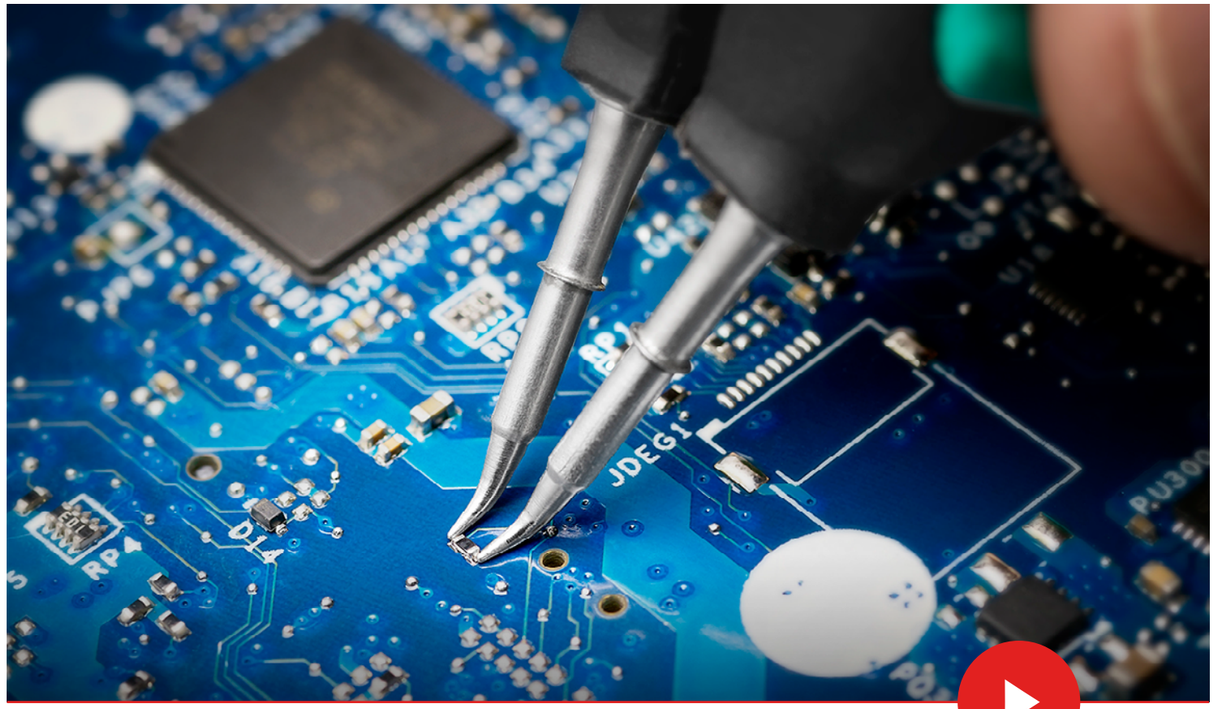
Alongside the JBC Exclusive Heating System, the NASE and NANE Stations also incorporate JBC Intelligent Heat Management system to prolong the soldering tip life by allowing them to cool when not in use.

The Sleep and Hibernation Modes help increase the soldering tip's usable life by a factor of five.

NASE and NANE Precision Solder and Rework Stations

JBC's market leading NANE and NASE Nano Stations are designed to facilitate the rapid placement and precision soldering of small Surface Mounted Devices (SMDs) onto PCBs.

Surface Mount Technology (SMT) features components that are much smaller than traditional wired components because they are soldered directly onto the surface of the PCB. Because they are smaller, components can be mounted closer together. This enables more electronics to be packed into a small space which, in turn, requires high precision soldering in order to attach or rework SMD components.



Working with ultra-miniature components

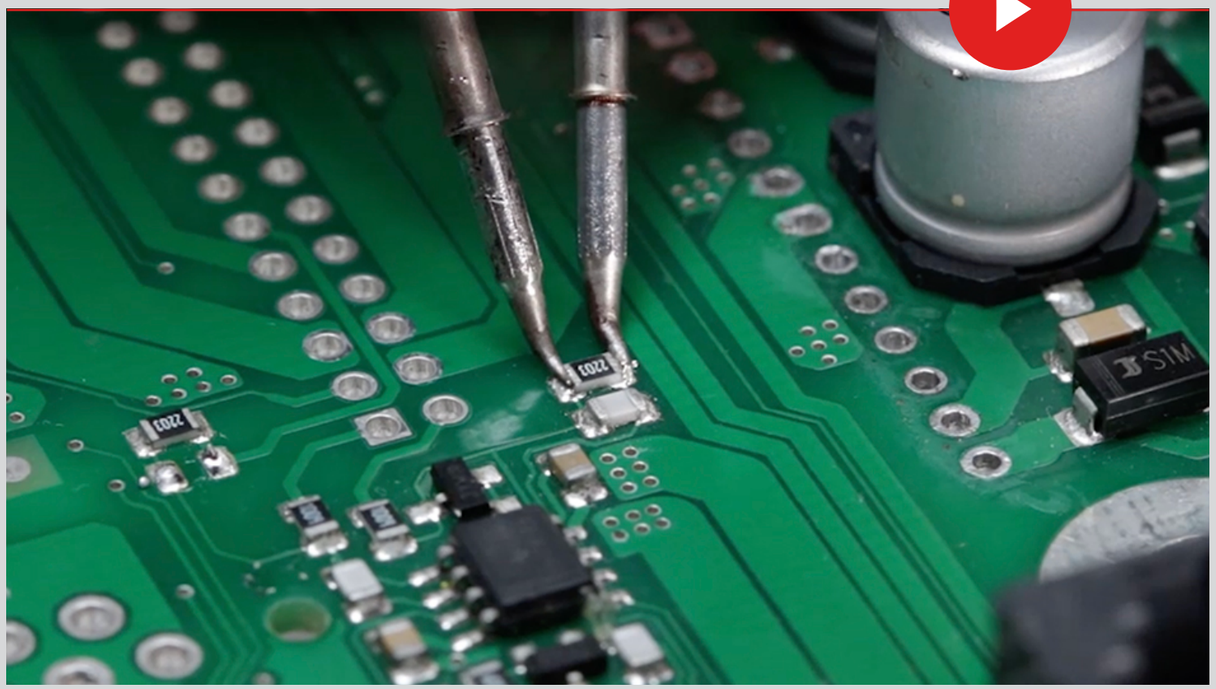
SMDs can be very small with dimensions measured in hundredths of an inch; an 0201 rectangular device, for example, will measure 0.02 x 0.01 inches (0.6 x 0.3 mm). Both the NANE Soldering Station and the NASE Soldering and Rework Station have been designed to operate with these ultra-miniature components.

Nano Handle, Nano Tweezers or both?

The NASE and NANE Stations come with a choice of solder tools: Nano Handle, Nano Tweezers, or one of each.

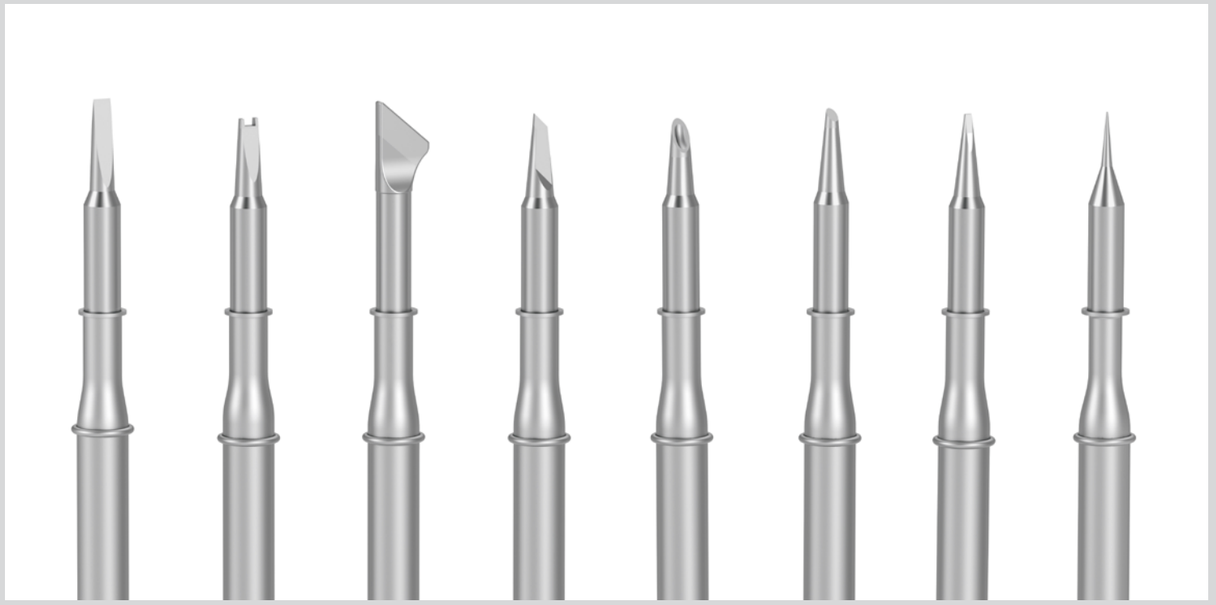
These tools are lightweight, comfortable and easy to handle; they have been designed with minimal distance from solder tip to the finger grip to make it easier for the operator to hold the tip steady, which is essential when working using a magnifying glass.

The Nano Handle is available with a selection of super-thin soldering tips for high precision work. The Nano Tweezers are the most effective tool for de-soldering devices or, when used in conjunction with a pedal control, the tweezers are ideal for the rapid placement and soldering of components.



Tip selection is the key to successful soldering

JBC has developed a selection of super-thin soldering tips for high precision work for both the NASE and NANE Stations. As with all JBC Cartridges, these feature durable tips with instantaneous heat-up and excellent heat transfer capabilities.



More than 30 shape of tips.
Does your soldering application require a special tip design?
Feel free to contact us at customtips@jbctools.com
and let us customize the best tip for your process.

To maximise productivity, a major benefit of the Nano Stations is that they are fitted with a Quick Cartridge Extractor. This feature enables cartridges to be swapped quickly and safely without the need to switch the station off. Of course, the JBC Intelligent Heating System will ensure the new tip is back up to working temperature in seconds.

JNASE Precision Hot Air Station

The JNASE Hot Air Station has been designed for reworking PCBs and High Density Interconnect (HDI) circuit boards with any size of SMD.

Reworking usually involves de-soldering and re-soldering components. The JNASE Station is designed to enable both the hot air flow rate and air temperature to be finely adjusted. A selection of cartridges enable the air jet to be targeted precisely to help prevent heat damaging adjacent SMDs with minimal device separation or the circuit board itself.

The Benefits of Hot Air

For rework, the JNASE Station uses hot air to quickly and evenly heat up the solder attaching the component to the PCB.

A range of cartridges ensure the hot air is precisely directed at the device being reworked. Because only heated air is in contact with the board surface, hot air also helps prevent damage to the surface of the circuit board.

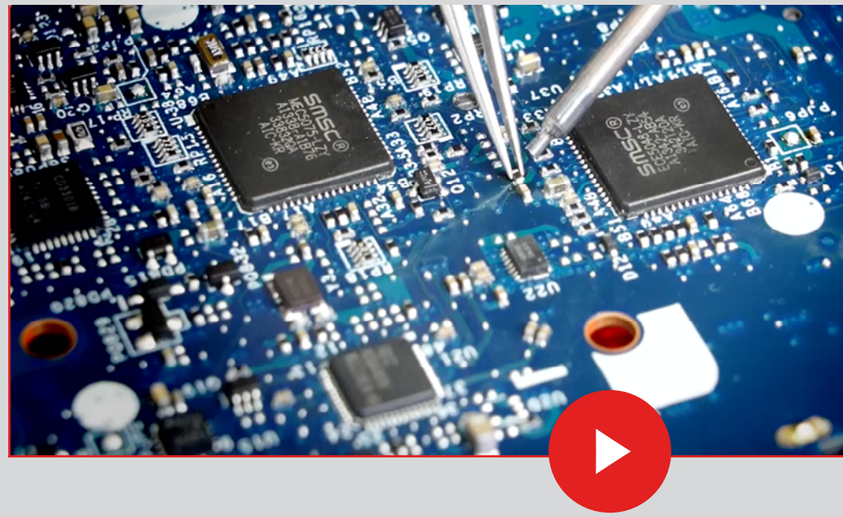
In addition, because the hot air is targeted precisely, the rework station can double as a soldering station to attach new components to the surface of a PCB or an HDI circuit board.

How to rework tiny components

The JNASE Hot Air Station allows easy rework of ultra-miniature SMD components (as small as 01005). Reworking involves using hot air to melt the solder joints attaching the device to the PCB. Once the old solder has been removed, a replacement device can be positioned using the Pick-and-Place tool before it is soldered to the board. For an optimal result, it is recommended to preheat the PCB to prevent thermal stress.

Preventing damage to adjacent components

To further improve safety and to save energy, the control unit also features an auto-stop function to turn off the air heater when the tool is in the stand.



Pick and Place

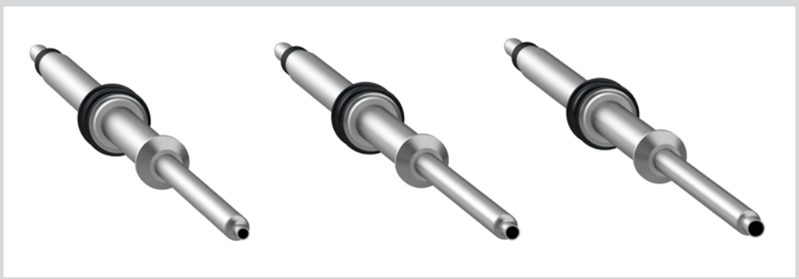
To enable operators to precisely position and remove ultra-miniature components, the JNASE Station includes a Pick and Place tool.

The tool is activated by a foot pedal connected to the suction port on the JNASE Control Unit. The needle and suction cup can be changed to ensure the best fit for the component being picked. When the station's suction function is activated, placing a finger over the small hole on the tool handle will enable the operator to direct suction to the tool's nozzle to pick up a component. When the component is positioned, the operator simply lifts the finger covering the hole to release the device.

Cartridge Choice

A choice of three different nozzles ensure the JNASE Station is the perfect tool to rework even the smallest of SMD components. The cartridge range features a 0.8mm, 1.0mm and 1.2mm diameter nozzle.

To further improve productivity, the JNASE incorporates a Quick Cartridge Changer to enable nozzles to be swapped swiftly and safely.



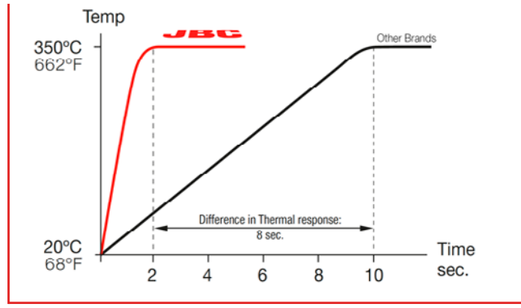
Why buy JBC?

Soldering at lower temperature

The NASE and NANE Stations feature JBC Exclusive Heating System which allows the solder tip temperature to be reduced by at least 50ºC. This helps minimise the risk of heat damage to components and to the tip through oxidation, while improving the quality of the solder application.

Fast temperature recovery

The efficiency of the heating system enables the tip temperature to rise from ambient to an operating temperature of 350ºC (662ºF) in only 2 seconds, far quicker than the majority of systems on the market, which helps improve productivity.

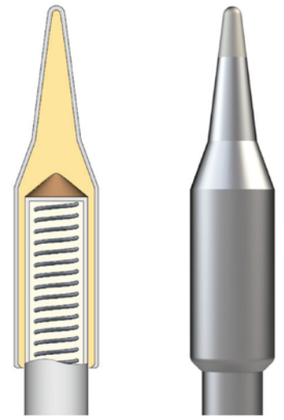


This rapid response is made possible because the handle and tweezer tools for the NASE and NANE workstations are designed with the heating element located close to the tool tip to ensure heat is delivered rapidly to where it is needed. A thermal sensor integrated into the element provides accurate and virtually instantaneous temperature readings to inform the station to deliver power to the heater to recover tip temperature.

Cartridges with extended tip life

The essential part of the soldering iron is the tip so JBC has **over 400 models of cartridges of different sizes and shapes** to choose from, depending on each application.

JBC has developed the most advanced technology based on the following principles:



Excellent Heat Transfer
The compact element reduces thermal barriers.

Instantaneous Heating-Up
A fully-integrated thermal sensor in the heater ensures quick temperature recovery.

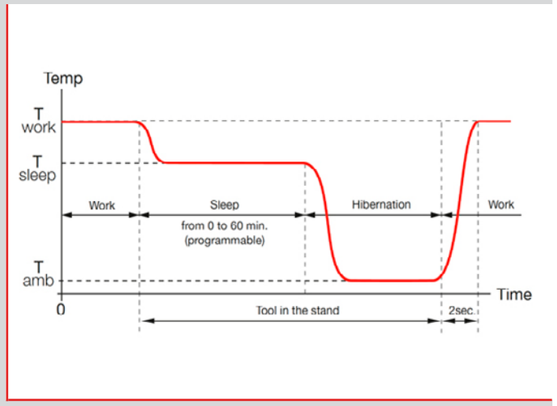
Great Durability
The intelligent algorithm control program extends tip life.

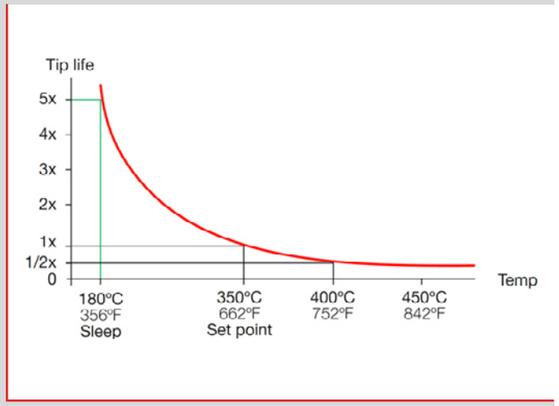
Extended soldering tip life

Tip life increases exponentially as tip temperature decreases; both NASE and NANE Stations switch to Sleep and Hibernation Modes when the tool is not in use to help extend tip life by a factor of five.

As soon as the handpiece is placed in the tool stand, the stations automatically put the tool into Sleep Mode, lowering the tip temperature below that of the melting point of solder to prevent dissolution of the tip's iron coating into molten solder.

If the tool remains unused for a further, configurable, period of time the station will cut the tool's power supply, placing it in Hibernation Mode, which returns the tip to room temperature to prevent further tip oxidation and saves energy.





Increased productivity

All Nano Stations feature JBC Quick Cartridge Extractor to enable users to change cartridges quickly and safely without the need for special tools.

The operator simply places the tool into the holder and then gives the hand grip a gentle tug to remove the old cartridge. A new cartridge can then be selected from the Cartridge Holder and inserted into the handle. This innovation reduces idle time while increasing productivity and enhancing operator safety.

JBC

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