

1. Introduction

The SOM removal tool is used to safely remove a soldered down SOM from a carrier board. The tool is made of aluminum and stainless steel to withstand the high temperatures of the reflow oven. It is equipped with four contact feet that firmly grip the SOM on two of its opposing edges. The tool is attached to the SOM using two thumb screws. Pictures of the tool are presented in the next section with labels that identify the parts of the tool referenced at later points in this document.

1.1. Identifying the Parts of the SOM Removal Tool

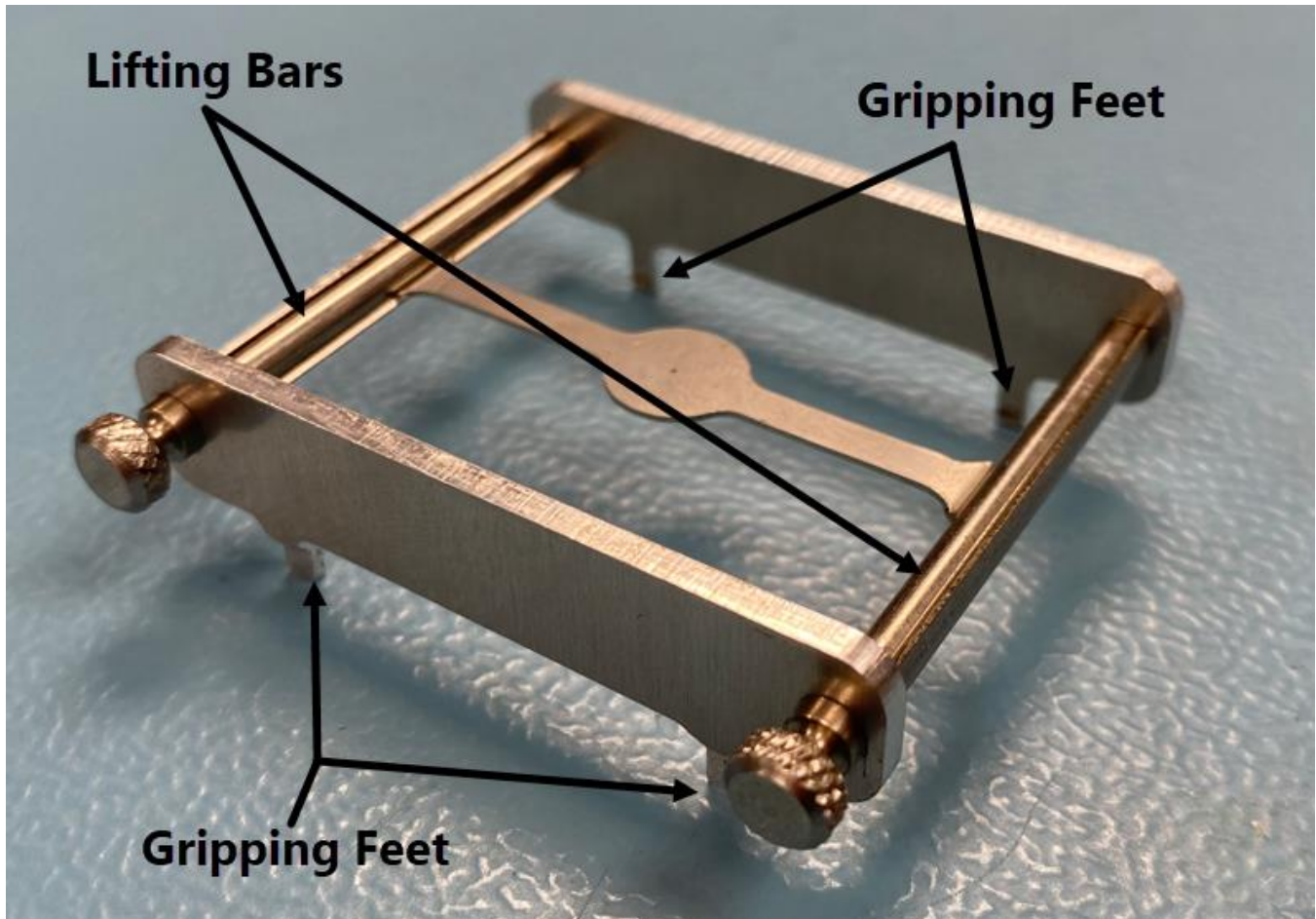


Figure 1-1 Lifting Bars and Gripping Feet

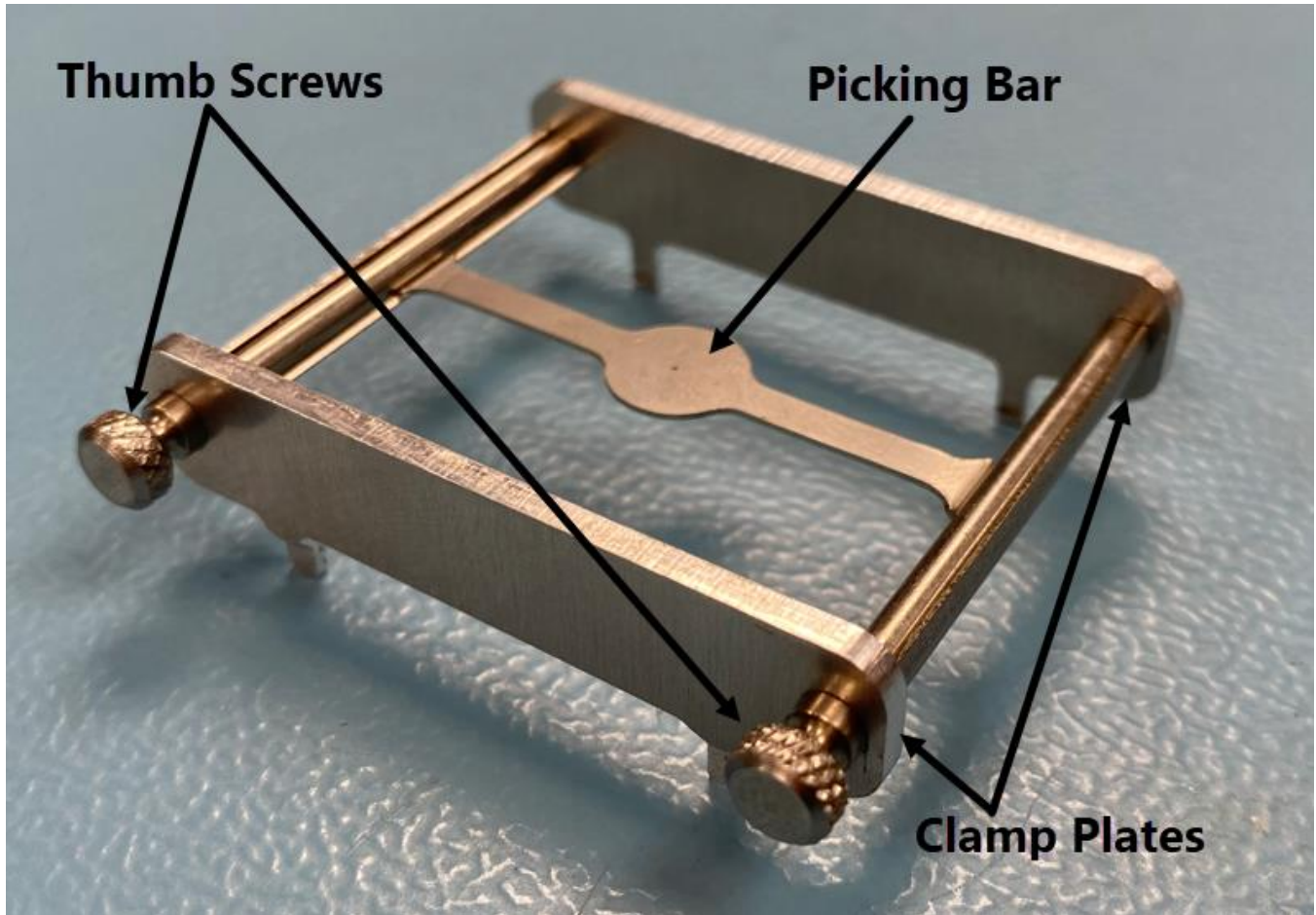


Figure 1-2 Thumb Screws, Picking Bar, and Clamp Plates

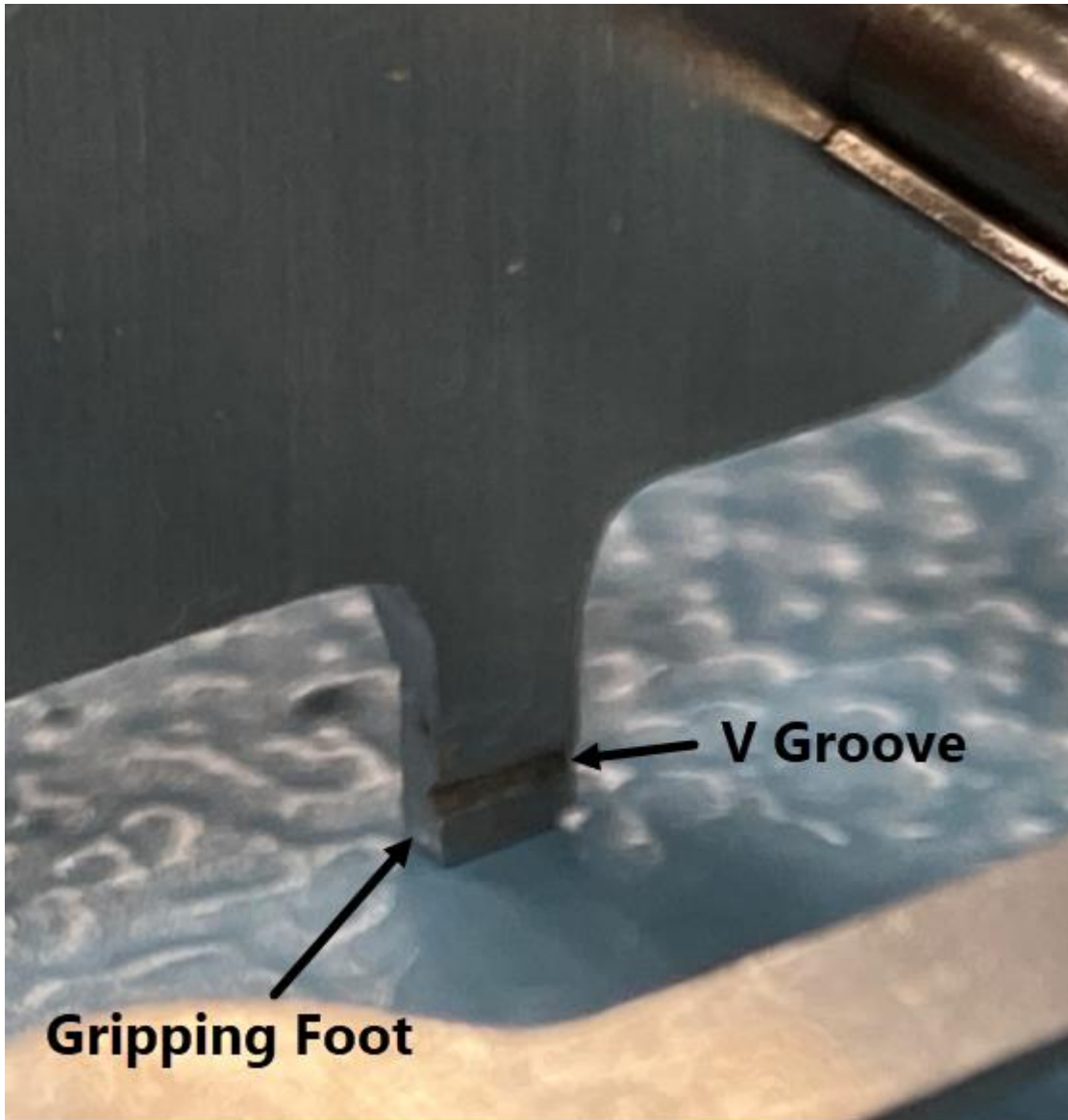


Figure 1-3 Gripping Foot and V Groove



Figure 1-4 Picking Bar Center Marker

2. Operation

2.1. Orientation

The tool was designed to have a minimal footprint to avoid interfering with components on the carrier board. If the tool size and geometry are taken into account during the design and layout of the carrier board, this guarantees the tool can be used without interfering with other components. If this consideration hasn't been taken into account, there is a high probability that the tool can still be used given its minimal footprint. The gripping feet are just 1mm x 2mm to allow for the tool to grip the edges of the board despite components on the carrier board being very close to the edge of the SOM. The clamping plates are just 2mm thick and the thumb screws are M2.5.

The orientation of the tool when attached to the SOM is important for two reasons:

1. The tool must grip the edges in the 37mm dimension of the PCL-069 SOM.



2. The thumb screws may interfere with components on the carrier board. If this happens the tool can be rotated 180 degrees.

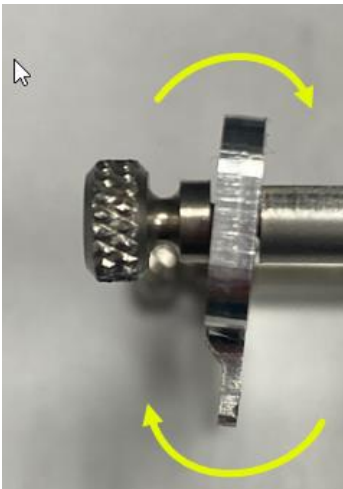
2.2. Installation

Installing the tool is fast and easy. Follow the steps below:

1. Loosen the thumb screws approximately one full turn to allow the clamp plate to tilt.

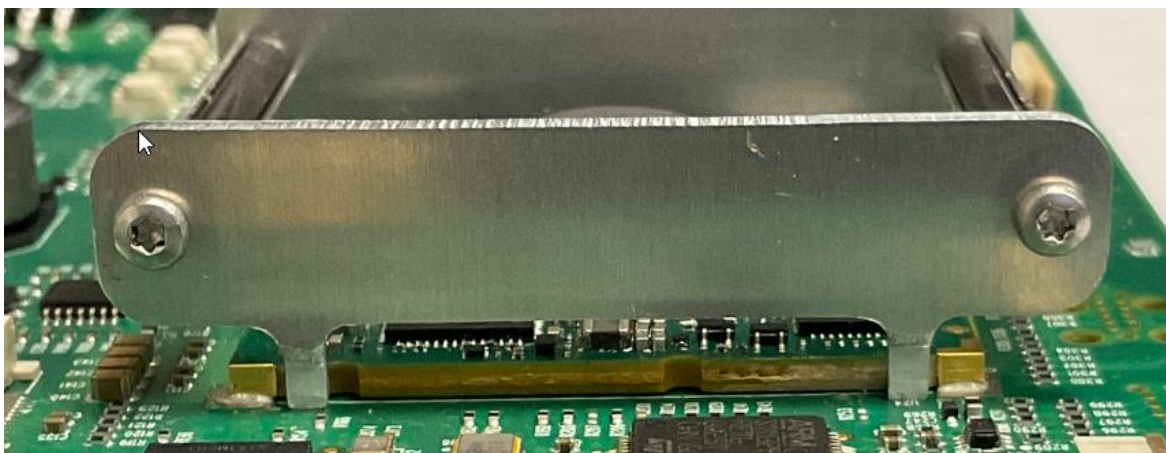
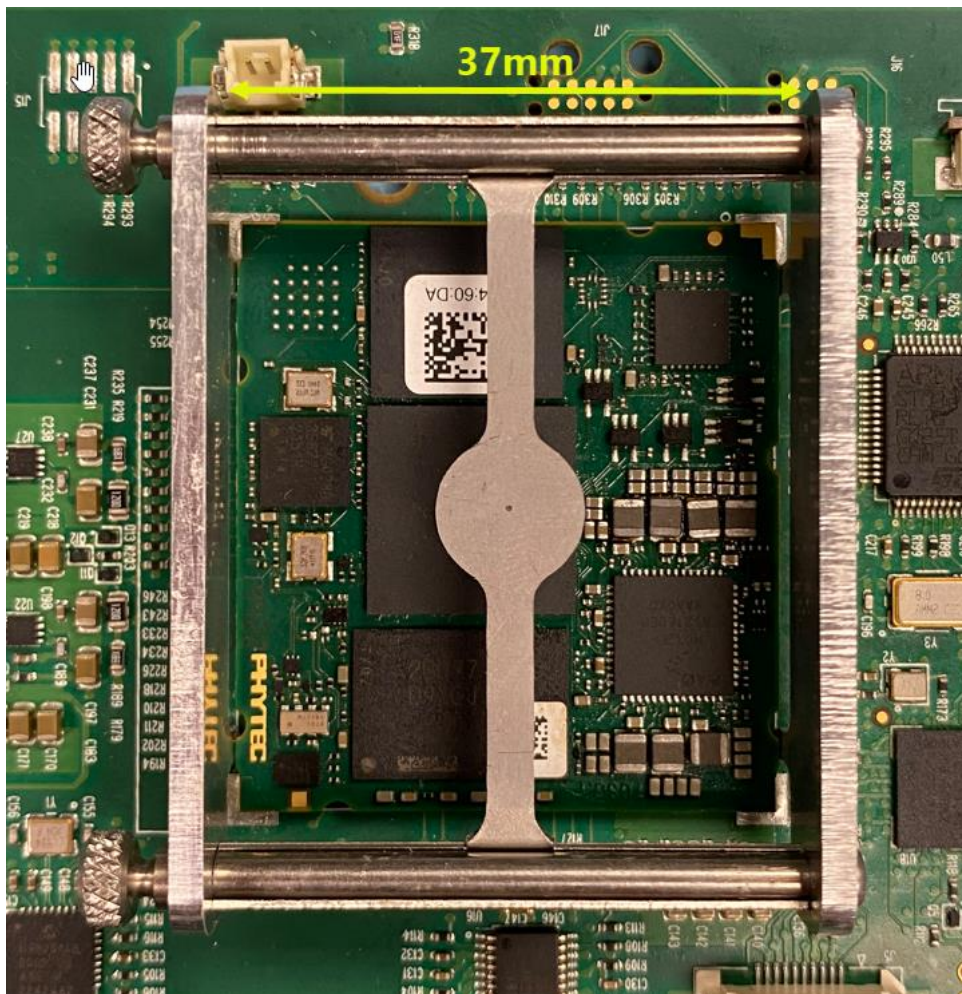


2. Tilt the clamp plate to expand the distance between the gripping feet so you can place the tool along the edges of the SOM.



Note that when the thumb screws are tightened you **will not** be able to install the tool on the SOM PCB!
You must loosen the thumb screws to install the tool.

- Place the tool over the top of the SOM across the 37mm dimension so the feet rest on the carrier board. Make sure the feet are contacting the carrier board surface and the tool is placed so the feet are centered between the corner soldering pads.



- Hold the tool firmly in position by pressing down on the lifting bars while tightening the thumb screws.

5. When installed correctly the tool will have a positive lock on the SOM. Pull on the SOM removal tool to verify it is clamped firmly to the SOM.

2.3. Removal with the Rework Station

With the tool firmly secured to the SOM you are ready to remove the SOM using a suitable rework station capable of:

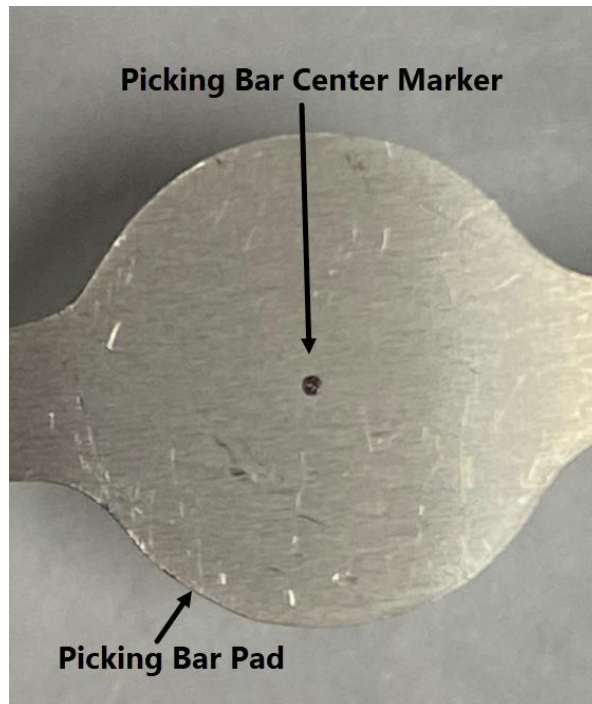
1. Bottom heat
2. Top heat
3. A picking nozzle with a 6-8mm silicone suction cup

PHYTEC uses a Kurtz Ersa HR550 “Guided Rework System”:

<https://www.kurtzersa.com/products/electronics-production/rework-systems/hr-550>

2.4. Installing Carrier Board into Rework Station

Install the carrier board, populated with the SOM, into your rework station per your standard rework procedures. If your picking nozzle is supplied with a laser alignment for component picking, then use the picking bar center mark to align the picking nozzle over the picking bar with the laser.



It is important that the nozzle is centered over the picking bar pad so the suction tip makes a good seal on the pad to ensure a firm grip of the tool (and thus, the SOM). A picture of the picking bar pad centered over the nozzle on the HR550 is shown below for reference.

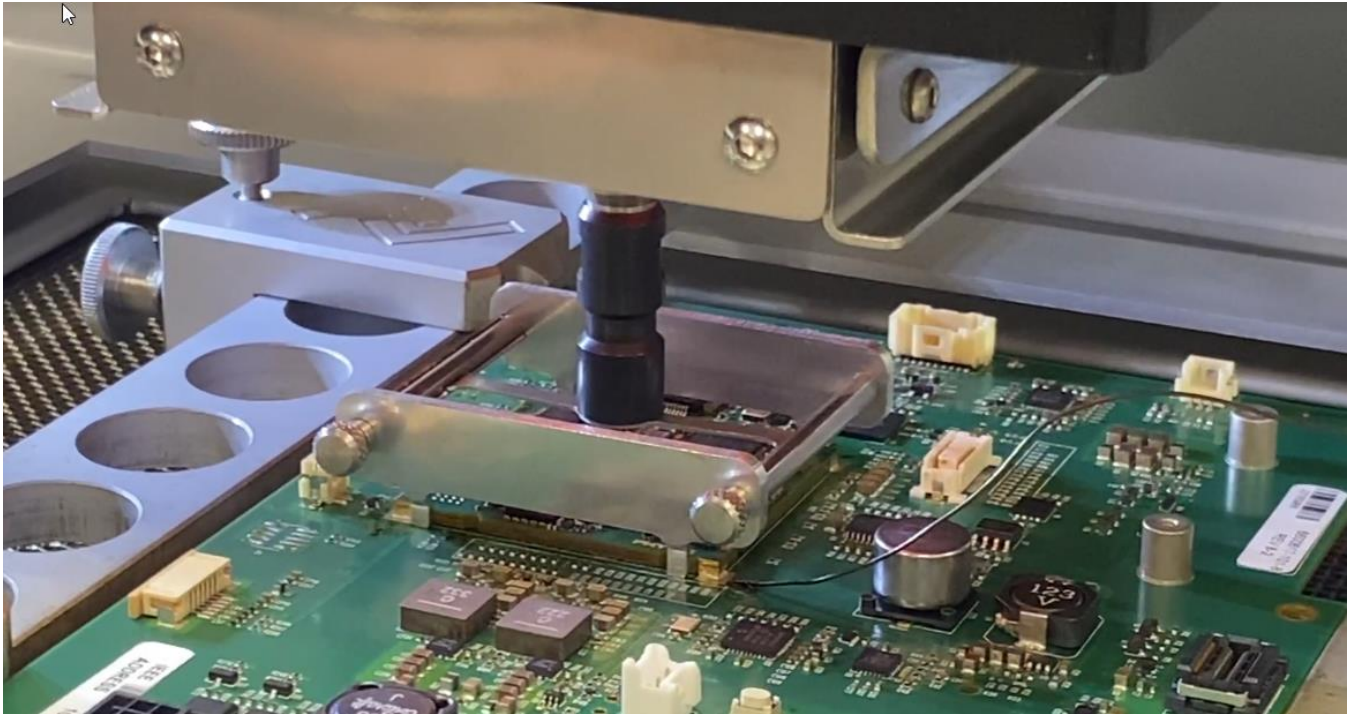
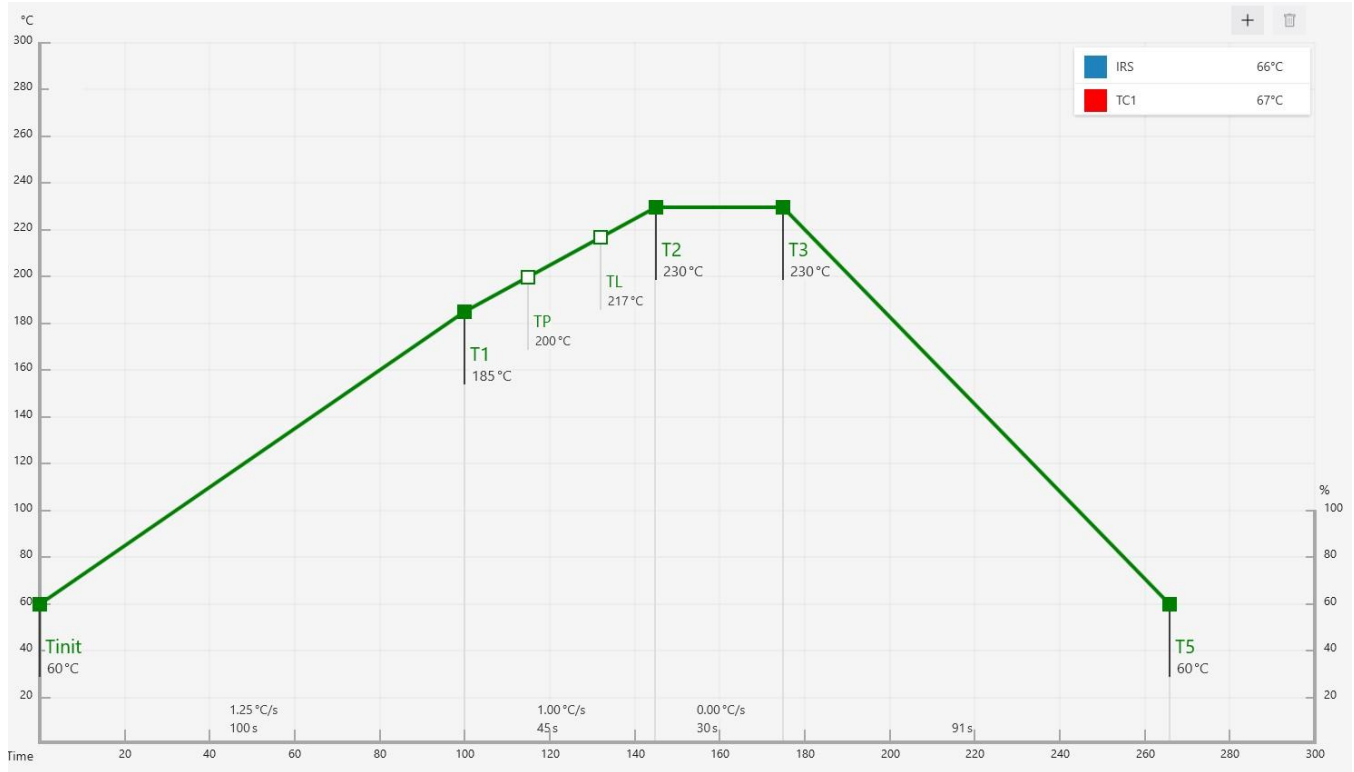


Figure 2-1 Rework station vacuum nozzle centered over picking pad

2.5. Reflow Profile

Follow your standard rework procedures for removing a BGA component with lead-free, SAC305 solder and adjust if necessary. For reference the reflow profile PHYTEC uses in our Kurtz-Ersa HR550 rework station is presented below.



The HR550 rework station picks the SOM from the carrier board at time T3 in the reflow profile above.

3. Revision History

Date	Version	Changes
2024/07/29	LAN-120e.A0	Initial release