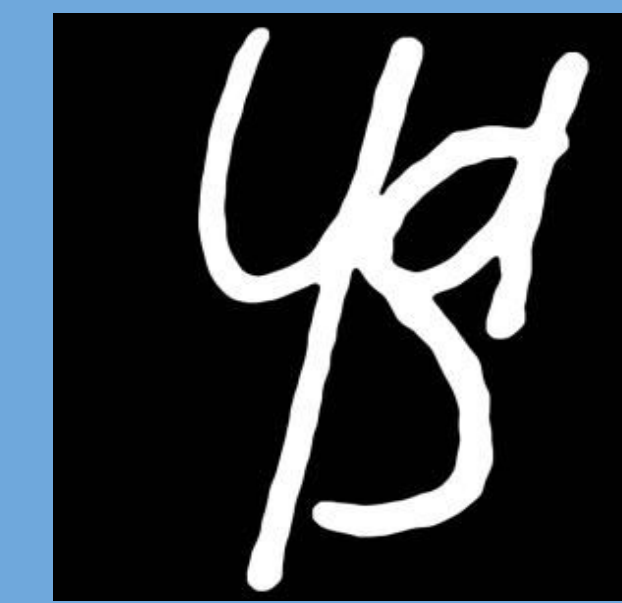




Automated Tooling Design for PCB Adhesive Application

By Young Smart Designs

& in association with Nordson Asymtek



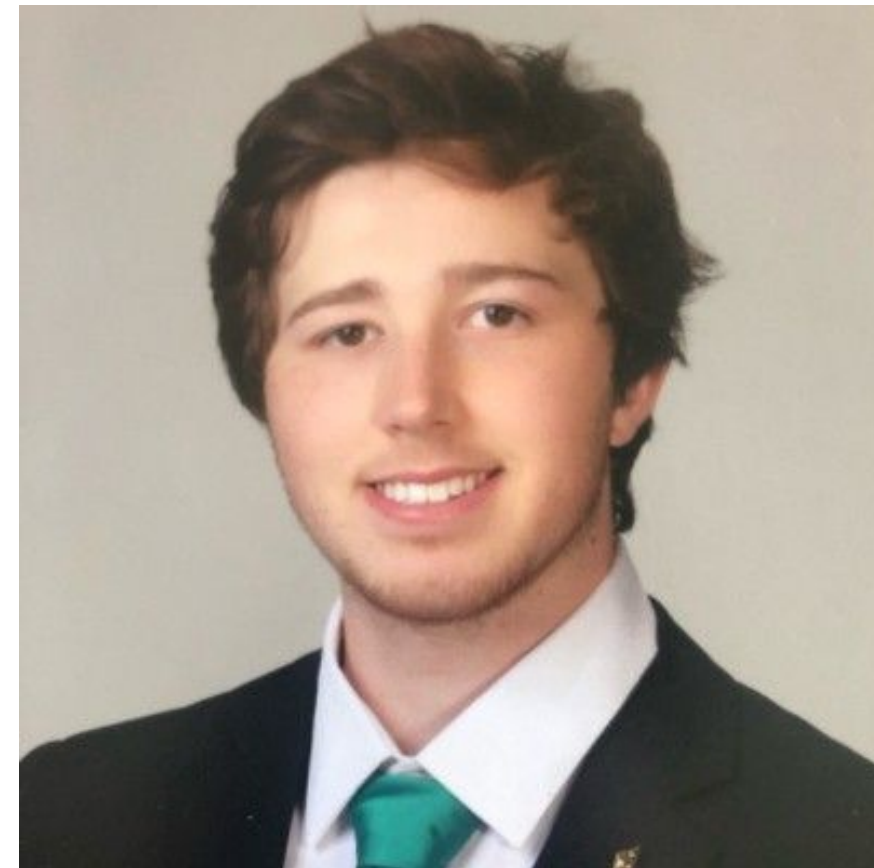
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Team Members



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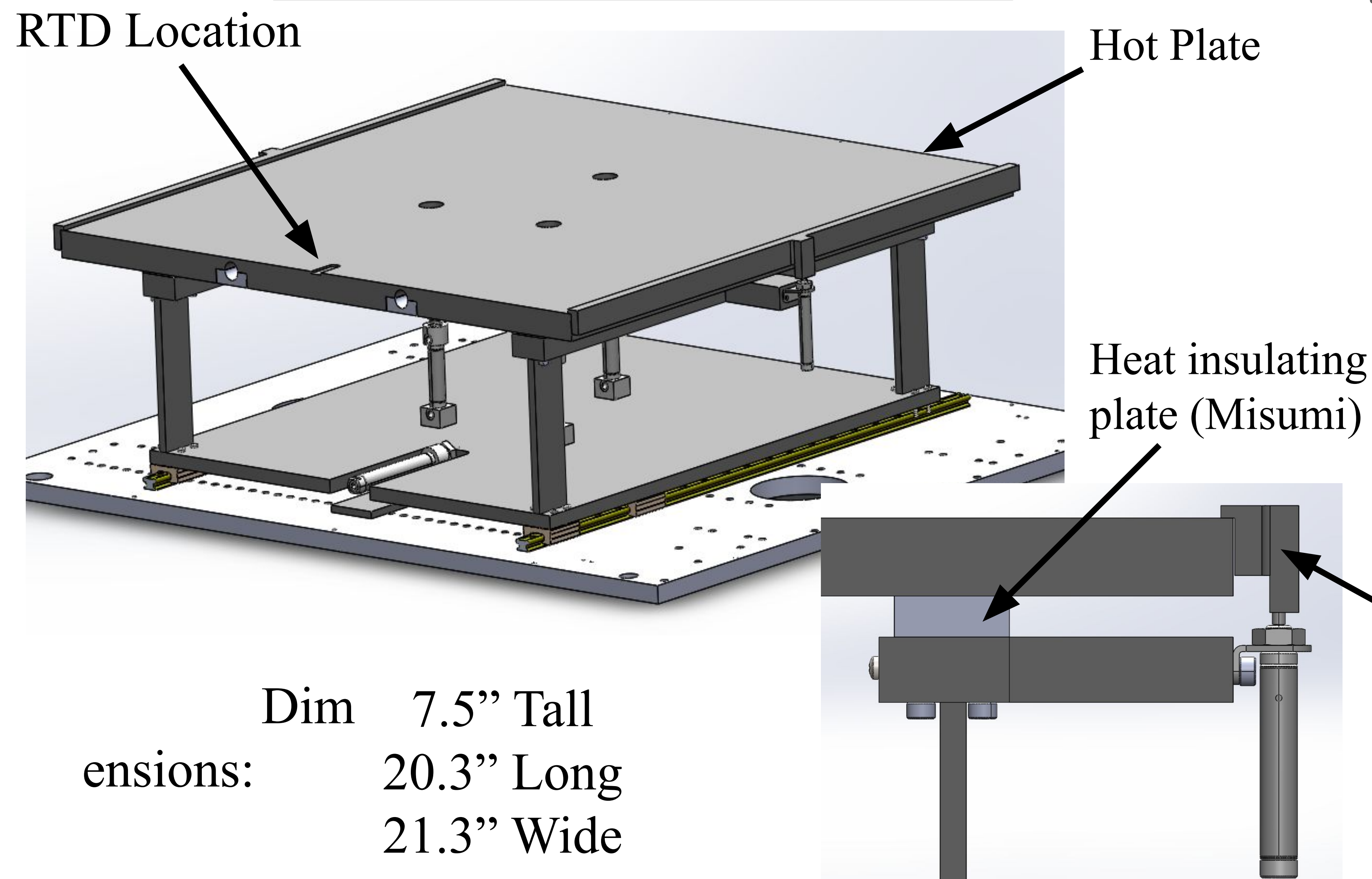


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Design Lead

Project Overview

Our team was tasked with creating a tooling design that will heat and clamp a warped PCB during the dispensing process. It will be integrated into an existing Nordson dispensing machine, and must be able to move the PCB so that the machine can cover the entire dispensing area.

CAD Design



Clamping Actuator close-up

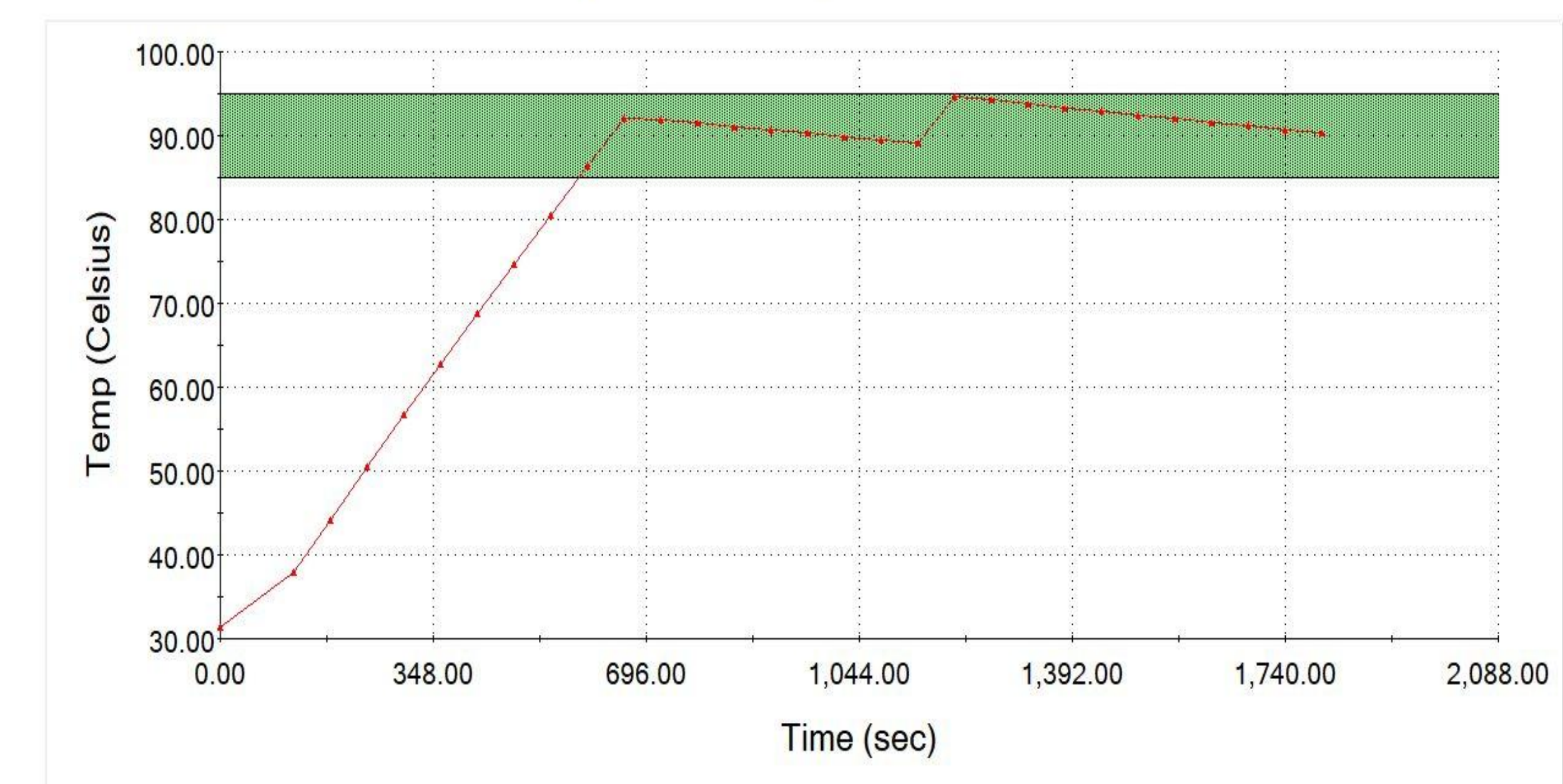
Main Components

- 6 Bimba Air Cylinders
- Regulator
- Actuation Sensors
- 5/2 Bi stable Control Valves
- 3/2 Normally Closed Control Valve
- Tooling Knobs
- MR Miniature Guide Rails
- Watlow Insertion Cartridge Heaters
- RTD Temperature Sensor

Testing

Below is an analysis of the heating plate temperature over time

Average PCB Temperature vs. Time



Design Requirements

- The system must be able to obtain and maintain heat while not heating the surrounding area
- Must work in conjunction with subsequent and consequent stages in terms of loading/unloading the PCB
- It must be able to clamp and handle PCB without damaging it
- Must be able to abide by the Vantage machine's sizing dimensions and electrical availability