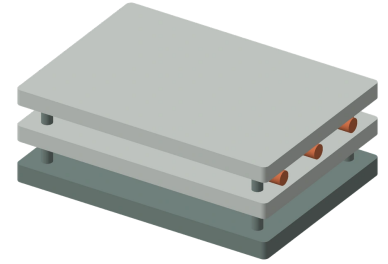


THERMAL ANALYSIS

Heated platen

Bring the whole working surface to a consistent temperature.



CONCEPT ILLUSTRATION

Thermal brief; heater selection pending

THE PROBLEM

A small heated fixture can be hot directly above its heaters and cooler near the edges. A single temperature reading does not describe the whole surface. This study considers heater spacing, plate construction, and insulation for a defined working area.

SCOPE

- Model heat conduction through the plate, heater locations, and backing insulation.
- Compare warm-up behavior and stabilized temperature for alternative layouts.
- Evaluate sensitivity to contact resistance and heat loss to the surroundings.

PLANNED DELIVERABLES

- Plate, heater, and insulation arrangement
- Thermal model, temperature maps, and warm-up curves
- Manufacturing drawings and a thermocouple test layout

CONSTRAINTS**Surface target**

90°C $\pm$ 2°C, proposed

Evaluation area

Central working area, to be dimensioned

Power

Heater power and supply limits to be selected

Model scope

Thermal performance of the platen assembly

VERIFICATION PLAN**Energy balance**

Check that the applied power, stored heat, and modeled losses are consistent.

Numerical convergence

Check spatial refinement and, for warm-up, the time-step size.

Measurement plan

Specify thermocouple locations across the surface so a physical test can evaluate the same quantities.

NEXT STEP

Define the working area, contact conditions, ambient temperature, and heater options.

90°C $\pm$ 2°C is a proposed design target. The study will evaluate platen temperature; it will not establish an adhesive curing process.