

LLNL Target Fabrication Precision Machining Upgrades and Relocation to B298

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Abstract

The LLNL target fabrication machining facility was relocated to be more integrated with the rest of NIF target fabrication efforts. The relocation provided an opportunity to upgrade much of the outdated equipment and invest in some of the latest ultra precision machining technology.

Design and Layout of New Shop

Design began in 2020

- Gathered Machine Requirements for 15 machine tools
 - Air/power/footprint
 - Setbacks for electrical panels
 - Egress between machines and benches
- Established Utilities Requirements
 - Data drops/Power/vacuum/air

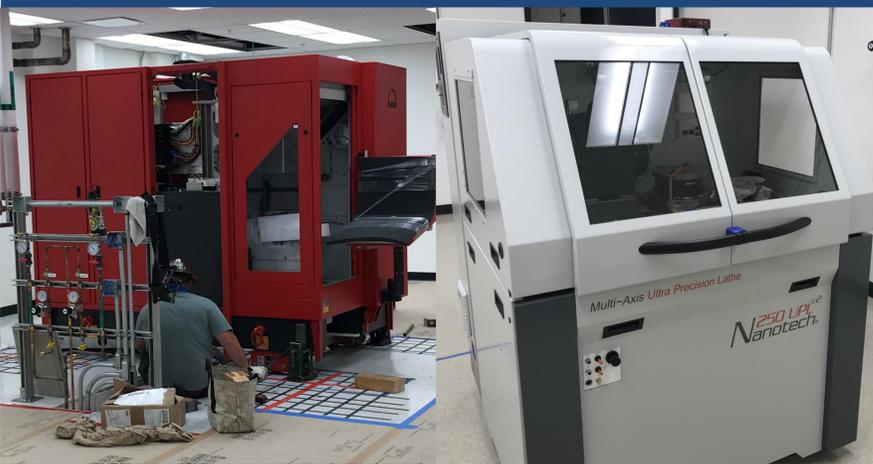


New Machines

- Installed four new machines
 - One 5 Axis Kern Micro Vario 5 axis milling center
 - Three Moore Nanotech 250 diamond turning machines
- Moved machinists onto new machines from B432
- Moved four vacated machine over from B432, this process repeated until all machines moved.
- Last four oldest remaining machines in B432 were sent to salvage.

Installing the Kern Micro Vario

Installing the Moore Nanotech



Moving the Shop

The shop never shut down to move machines and we continued to meet our target deadlines.

Coordination was handled by:

- Machine Tool Services
- NIF Logistics

B432 Precitech DTM line



These Precitech machines were the first ones purchased for target fabrication at LLNL in 2002. These four machines were excessed at the end of the move.

B432 Nanotech machines move into B298.



As the machines moved to 298 and returned to functioning, machinist were moved over to run them.

Completed Move

Once all the equipment, benches and cabinets had been anchored, cubicle walls were placed around the benches to help reduce echo of the room and give a quieter workspace for the machinist to focus.



Updated Ergonomics

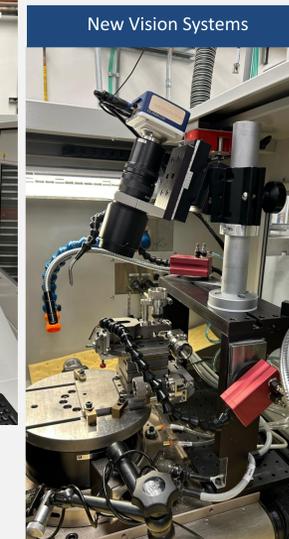
Updates to ergonomic equipment include:

- Vision systems
 - HD Cameras
 - HD Monitors with new brackets that allow more adjustability
- Nanotemp 16 channel continuous temperature monitoring

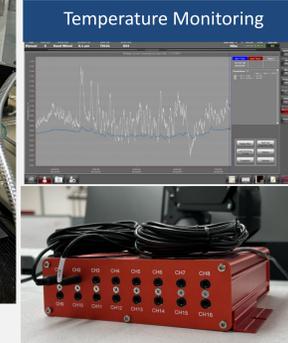
New Monitors and Brackets



New Vision Systems



Temperature Monitoring



Future Upgrades

Coming in Fall of 2024 we will bring online a new capability in both the Innolite IL600 5 axis lathe with laser assisted machining and the Mitsubishi 1200-R wire EDM with the small wire kit enabling wire down to 50um (.002")

