Physics Machine Shop
Specializing in the manufacture of experimental research and prototype apparatuses, the Physics Instrument Shop is fully equipped to handle most machining, inspection, fabrication, and assembly tasks.

Our highly skilled Instrument Makers have extensive experience machining all conventional materials, exotic alloys, rare-earth metals, plastics, composites, and some ceramics.

Our shops have participated in several major collaborations and experiments around the globe, including:

- The Atlas experiment at CERN
- The Sloan Digital Sky Survey
- Mars Rover components for NASA

Please submit a [Work Request](mailto:machineshop@uw.edu) for new jobs and refer to the [job queueing policy](mailto:machineshop@uw.edu). If you have questions about a job please contact machineshop@uw.edu.

**Instrument Shop Manager:** Bob Scott, bjs24@uw.edu, 206-685-4266, Office: B076

**Student Shop Standard Operating Procedures**

**Design**

Equipped with the latest CAD/CAM software, the Physics Machine Shop can reverse engineer and design from sample parts or rudimentary instructions.

Using SolidWorks and Unigraphics, Instrument Makers often design devices from hand-drawn sketches and recommend the proper engineering and materials for the application.

**Machining**

The Physics Machine Shop is a full equipped machine shop complete with turning, milling, grinding, EDM, and honing capabilities.

**Processes**

- Wire and Die-Sinker EDM
- (Electro-Discharge Machining)
- CNC milling
• CNC turning
• Surface grinding

Capable of
• Holes down to 0.002"
• Slots down to 0.005"
• Threads up to 120 pitch
• True 4-axis milling
• CNC lathe with live tooling

Capacity
• 10-ton crane
• Milling capacity up to 82" x 33" x 29.5"
• Turning capacity up to 21" swing x 60" long
• Surface grinding capacity up to 6" x 18"

Fabrication
Fabrication of ultra-high vacuum systems to large steel assemblies is easily accomplished by the Physics Machine Shop.

Processes
• Oxygen/Acetylene
• MIG
• TIG
• Spot
• Plasma cutting
• Brazing
• Soldering

Heat Treating
• Box furnace
• Tube furnace
• Oil quenching
• Water quenching

Fine Detail Welding
• Edge welds to 0.003"
• Butt welds to 0.005"

Inspection
In addition to general inspection equipment, the Physics Machine Shop has several precision measuring devices and surfaces.

Equipment
• Optical Measuring Scope
• Helium Leak Detector
- Laboratory-grade granite surface plates
- Standard Gauge Blocks and measuring equipment

**Optical Measuring Scope Specifications**

Volume – 8” x 6” x 8”

Accuracy – 0.00015” / 8”

Magnification – 53x to 270x power

Helium Leak Detector

Accuracy – 1x10-9 std. cc/sec

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