

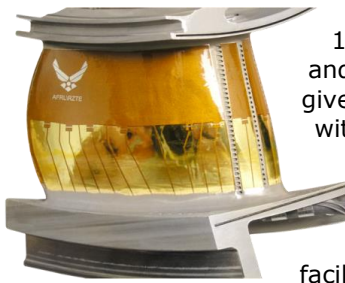


# Facility Factsheet

## Heat Flux Instrumentation Laboratory (HFIL)

### Description:

The Heat Flux Instrumentation Laboratory is used to develop advanced, flexible, thin film gauge instrumentation and flow control devices for the Air Force Research Laboratory. These sensors provide unique high-resolution, high-frequency, surface heat flux measurements for cascade and fully-rotating turbine test rigs. Higher temperature ceramic sensors have also been made for short-duration pulsed and rotating detonation engine testing. The lab allows researchers to produce thin film instrumentation in-house, enabling quicker turnaround time, greater design flexibility, and ultimate cost savings.



The laboratory is a class 10,000 clean room with photolithography and chemical etching equipment. The facility gives researchers the freedom to experiment with various instrumentation designs and new types of flexible sensor patterns. The new sensors provide high-resolution, high-frequency, surface heat flux data that was previously unobtainable in current research facilities. The laboratory clean room also allows researchers to fabricate new devices, such as flexible Plasma Flow-Control electrodes or custom heating film layouts.



### Purpose:

Provide the U.S. Air Force Research Laboratory the capability to develop advanced, high frequency, flexible, thin film gauge instrumentation for research test facilities.

### Products:

- Traditional single-sided and double-sided thin-film gauges
- High-Density Platinum Heat Flux sensors and Heat Flux Imaging Arrays
- Conventional plasma flow control electrodes
- Flexible plasma flow control electrodes
- High Temperature, High Frequency Heat Flux sensors on ceramic substrates
- Custom heating film patterns
- Flexible Hot-Film Anemometry Sensor arrays



### Availability:

Primarily in-house and related DoD contractor research. Other U.S. Government agency, DoD contractor and commercial customer programs upon request. Contact: 937-255-4100.