



Custom Design Solutions

2-Axis Air Bearing Lathe and Metrology Work Cell for Diamond Turning of Precision Valves

“Pride in People ... Pride in Precision”

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*Our mission is to apply our specialized skills, experience and technical capabilities
to any application requiring the highest precision motion.*

ABTech Custom Design Solutions



Lawrence Livermore
National Lab NIF Target
Assembly Station



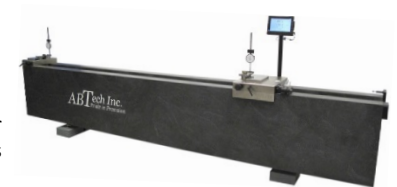
**2-Axis Air Bearing Lathe
and Metrology Precision
Machining Work Cell**



NASA NuSTAR Telescope
Optics Assembly Stations



Non-Contact 3-D
Optical Metrology
Platform



Custom 150" Setting Master
for Large Diameter Beam Gages

"Design Built for Custom Applications"

ABTech inc.
Pride In Precision

Air Bearing Metrology & Lathe Work Cell

2-Axis Diamond Turning Precision Valves

ABTech designed and delivered air bearing based metrology stations and 2-axis lathes for a leading OEM automotive parts manufacturer to measure mass produced shafts and machine precisely matched sleeves, bringing manufacturing back to the US.



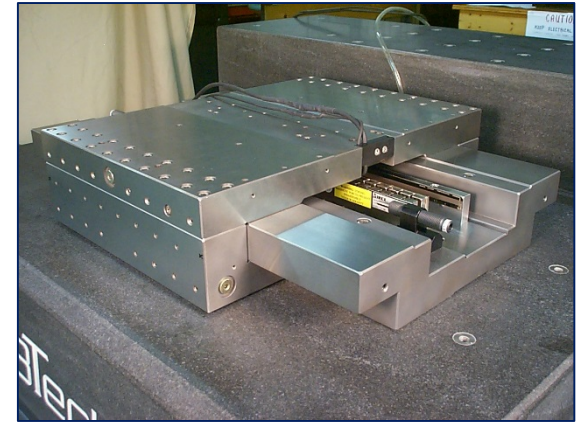
ABTech inc.
Pride In Precision

Air Bearing Metrology & Lathe Work Cell

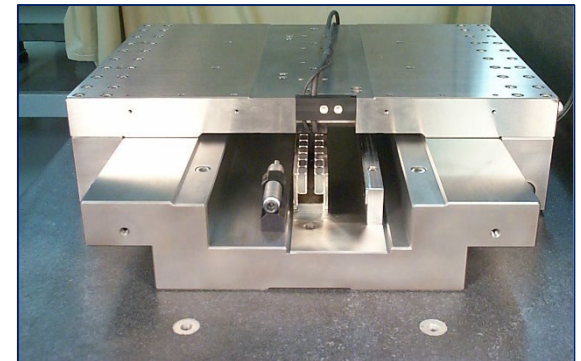
Increasingly tighter part tolerances on transmission parts made it more difficult for typical off-shore sourcing channels to meet the quality standards being demanded by the major automotive manufacturers. To solve this international sourcing logistics problem, a leading manufacturer of OEM automotive parts contracted ABTech to design and manufacture a turnkey work cell.

The objective was to develop a combination metrology and machining system that would measure valve shaft components, and then machine precisely matched corresponding sleeves. In addition to the prerequisite of being very accurate, piece part cost concerns meant that the system had to efficiently produce parts with high through-put and low scrap rates.

The resulting air bearing-based metrology and 2-axis lathe work cells began producing saleable inventory on the day of installation, helping to bring manufacturing back to the US.



Linear Slides Close-up

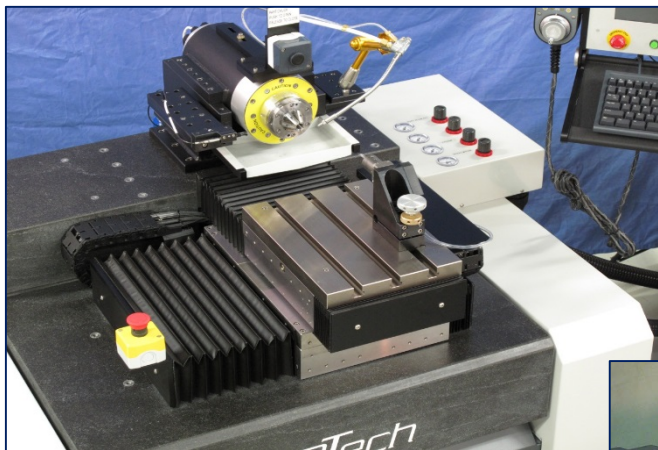


❖ Linear motor drive with optional encoder

Air Bearing Metrology & Lathe Work Cell

2-Axis Diamond Turning Precision Valves

Lathe Platform Close-up



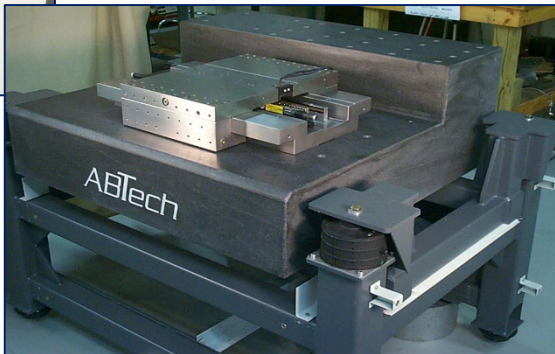
Machining station with:

- ❖ Stacked X and Y axis motorized linear air bearing stage
- ❖ High speed air bearing spindle with pneumatic collet
- ❖ Granite surface plate with vibration isolation air bag base

Controller includes: Delta Tau motion controller

- ❖ Industrial PC with application software
- ❖ Operator control panel with remote pendant

**Vibration Isolation Frame
Supporting Stepped Granite Base**



Metrology Platform Close-up



Metrology station with:

- ❖ Vertical Z axis motorized linear air bearing column
- ❖ Counterbalance pulley with air bearing sleeve
- ❖ Motorized air bearing rotary table with part holding chuck
- ❖ High accuracy non-contact laser micrometer

ABTech Ultra-Precision Metrology, Motion, and Custom Engineered Solutions.

We have one for you....

ABTech's full in-house engineering, manufacturing, assembly and testing capabilities are the answer for just what you need.

Made in the U.S.A. by:

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