ABTech inc.
Pride In Precision

Custom Design Solutions

ABTech Air Bearing Rotary Table Installed at the South Pole

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"Pride in People … Pride in Precision"

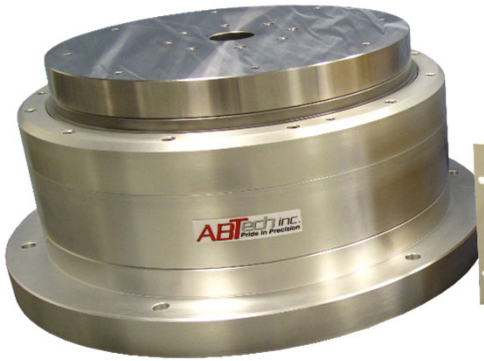
Our mission is to apply our specialized skills, experience and technical capabilities to any application requiring the highest precision motion.

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



18,000 RPM Air Bearing Spindles for
Image Scanning in Harsh Conditions

AT400, 2000LBS,
Rotational Accuracies
better than 5µ"
(millionths of an inch)

Non-Contact 3-D
Optical Metrology
Platform

Custom 150" Setting Master
for Large Diameter Beam Gages

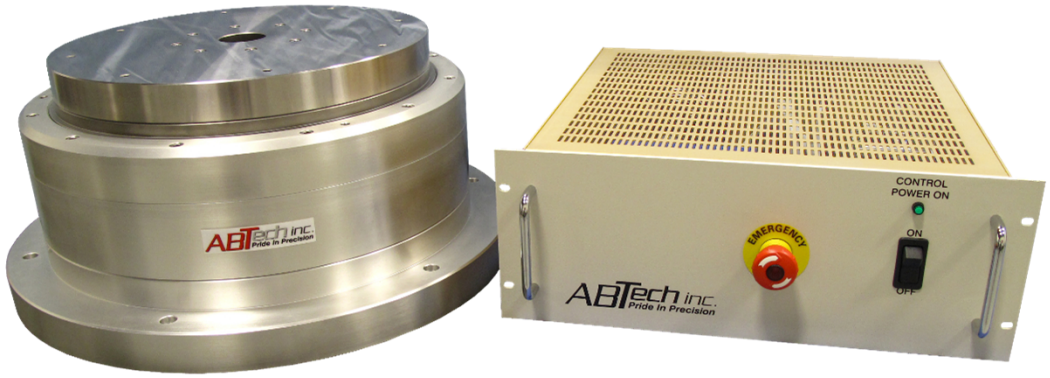
"Design Built for Custom Applications"

ABTech inc.
Pride In Precision

AT400, 2000LBS, Rotational Accuracies better than 5µ", No Problem….

The Challenge

Researchers at Princeton University needed a large diameter ultra-precision rotational axis with a motor drive, so they contacted ABTech to provide a solution.



What made this request unusual?

First, they needed to install their ENTIRE research project on TOP of the rotary table.

Second, their tests had to be run continuously over a period of several weeks.

Third, their sensitivity level was so high that the system had to be installed at the South Pole to eliminate the effects of the earth's rotation!

There are many big players who provide rotary tables but at ABTech, we take pride on coming up bigger than our competitors when it comes to solving our customer's unique requirements. So naturally, Princeton came to ABTech…

ABTech inc. Pride In Precision

AT400, 2000LBS, Rotational Accuracies better than 5μ", No Problem….

We started with an AT400 series rotary air bearing table capable of holding 2,000 lbs with certified rotational accuracies of better than 5 millionths of an inch. To that standard platform we added an integrated direct drive and a single axis programmable controller to continually move this mass in a repetitive oscillation pattern for several weeks at a time.

The research project was installed at the Amundsen-Scott South Pole Station early in 2013. This marked the first time an ABTech product had been "exported" to Antarctica and it made the 7th and final continent where our products are being used!

As Marc Smiciklas, the post doctoral research associate at Princeton reported:

"I just got back from the South Pole last week. Everything there went well.

The experiment is now up and running and the air table is working flawlessly!"

For the truly technical, here is an excerpt of the article published online by …..

The Antarctic Sun:
New Experiments Installed at the South Pole in January

By Jeffrey Donenfeld, South Pole correspondent
Posted February 8, 2013

The installation of the South Pole Lorentz Invariance Test (SPLIT) is being overseen by Princeton University post-doc Marc Smiciklas for principal investigator Michael Romalis.
A violation in this symmetry would suggest that there's a new element to physics which falls outside of what the current standard model can predict.
The SPLIT apparatus arrived in January. One of the main tasks involved alignment of the sensitive laser optics. Smiciklas will work with research associate Andrew Vernaza on developing comprehensive maintenance, testing and operating procedures for the winter.
The full article can be read at: Antarctic Sun South Pole Lorentz Invariance Test (SPLIT) Project.

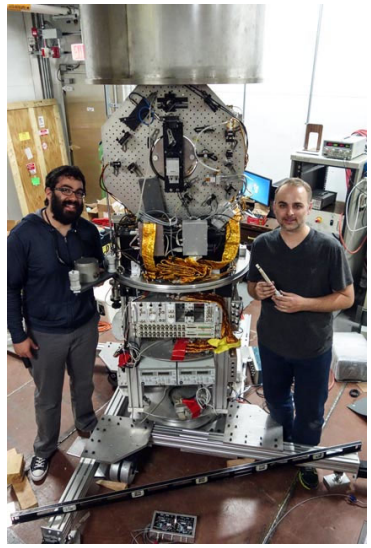


Photo Credit: Jeffrey Donenfeld
South Pole research associate Andrew Vernaza, left, and scientist Marc Smiciklas install the SPLIT experiment in the former Cryogenics Lab.

ABTech inc.
Pride In Precision

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.

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