



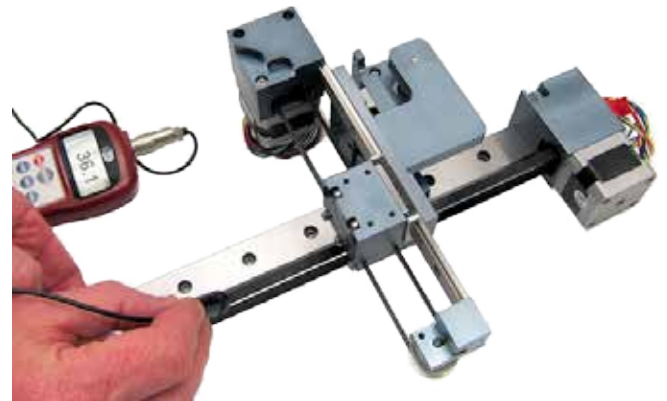
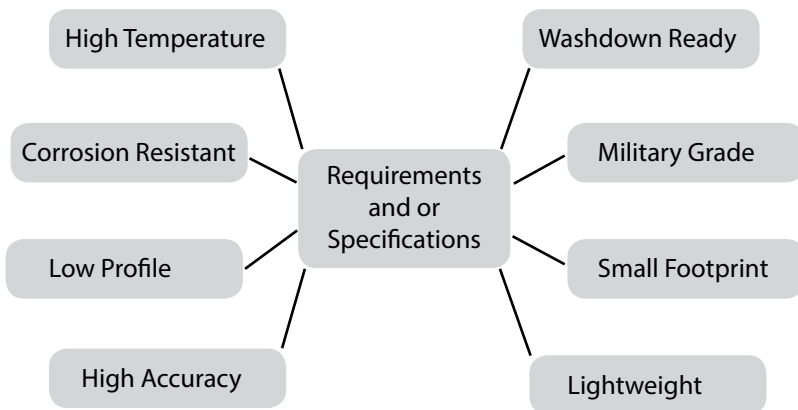
# TPA

Website: [www.linearpositioningsystems.com](http://www.linearpositioningsystems.com)

## “ENGINEERED POSITIONING SOLUTIONS”

We specialize in **Mechanical & Electromechanical** linear motion assemblies for challenging and or limited space environments.

### What’s Challenging You?



Three Axis Medical Device Assembly  
*Challenge: Small Footprint*

TPA is OEM focused. Lean manufacturing, a shared market infrastructure, and the fact we sell directly, not through distribution, is how we maintain a low overhead. Therefore a low cost to you.

If you want technical expertise, high product quality, and competitive prices, contract TPA for your linear motion needs.



Three Axis Piezo Driven Nano Stage  
*Challenge: Small Footprint, High Resolution*



Two Axis Life Science Open Stage Assembly  
*Challenge: Low Profile - 29mm height*

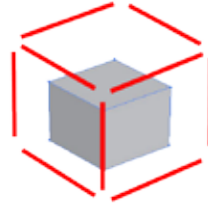
**The Precision Alliance**  
 4215 Pleasant Road  
 Fort Mill, SC 29708  
**Ph: 1-803-396-5544**



## Precision Accuracy

### Scanning Systems

- Nano Scale Imaging
- Medical Diagnostic Equipment
- Laboratory Automation



## Space Constrained

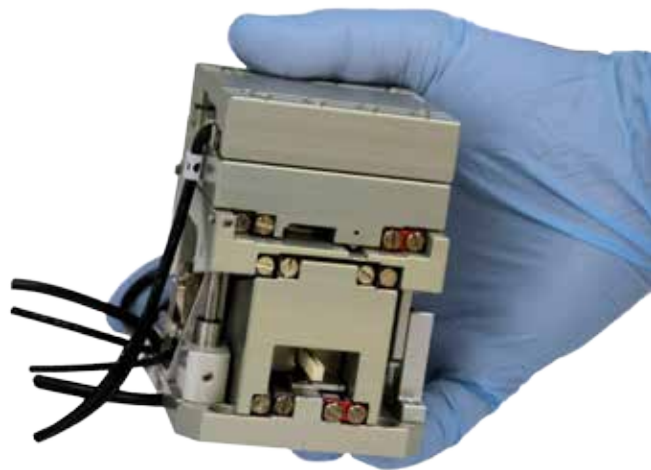
### Desktop Devices

- Microscopic Imaging
- Point-of-care Diagnostics
- Laboratory Automation



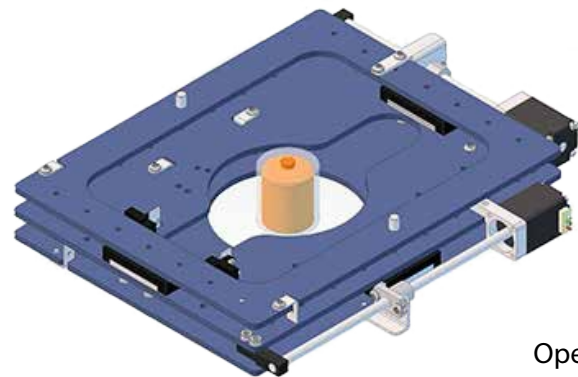
Two Axis Life Science Open Stage Assembly  
*Challenge: Low Profile, Large Aperture*

Some life science applications push the limits of technology forcing new systems to emerge. Below is a photo of a very compact motorized nano positioning stage that was developed to meet these requirements. Piezo motors precisely drive the x, y, and z axis. Each unit is tested and the precision, repeatability, and accuracy data is documented. This data is transmitted to the customer so they can incorporate these parameters into their machine.



Piezo Driven XYZ Nano Positioning Stage  
*Challenge: Compact Space, High Precision & Accuracy*

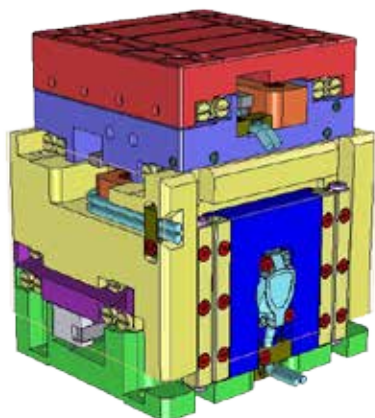
As technology evolves more companies are looking to pack a higher level of performance into smaller packages. Being experienced with miniature component technology our engineers are able to create some very effective solutions when up against these physical constraints.



Open Stage Assembly 3D CAD Model

With our in house ability to test and measure performance we are continuously looking into new designs to take precision to another level for our customers next generation requirements.

3D modeling enabled us to simulate the movement and achieve the travel requirement needed by our customer.



We use 3D CAD modeling to preview ideas and concepts with customers.

Our modeling software can easily import and export data in STEP file format.



X-Y Custom Wire Bonding Stage Assembly  
*Challenge: Maintain Footprint - 100mm by 35mm*



## Life Science

### Lab Automation Equipment

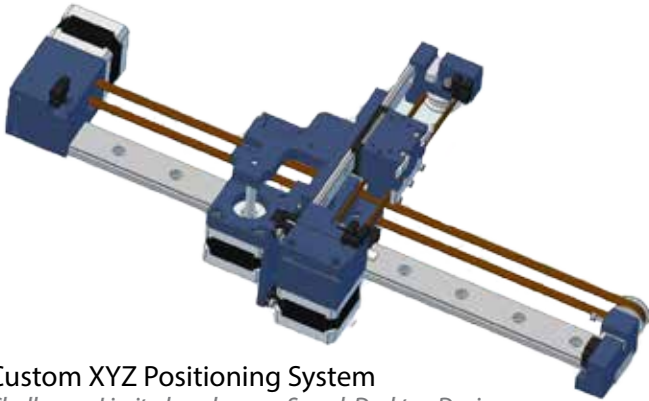
- Auto Analyzers
- Microwell Plate Handling
- Microarray Spotters

Below are just a few examples of our many custom systems that we have developed and produced in volume.

We continually build on this experience to enhance and refine products for tomorrow's new requirements.

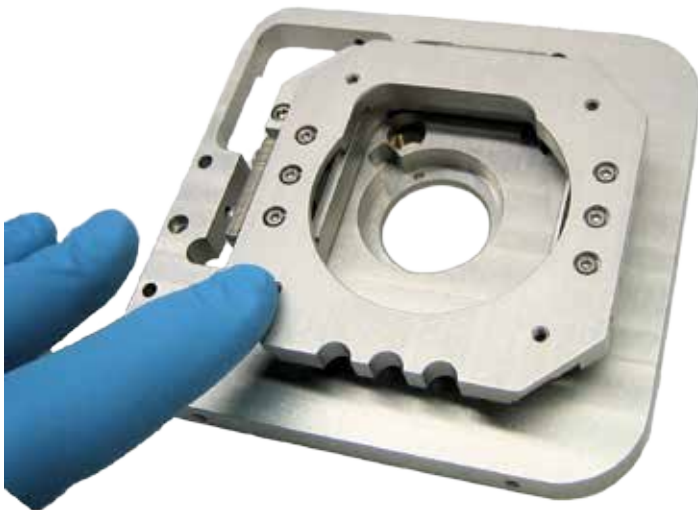


Custom XY Linear Motor Positioning System  
*Challenge: High Speed & Low Profile*



Custom XYZ Positioning System  
*Challenge: Limited workspace, Speed, Desktop Device*

In the above 3D model, a combination of hollow motor with integrated ball screw along with belt drives helped us maintain low height while providing the needed speed.



Open Stage XY Subassembly  
*Challenge: Compact, Very Smooth Movement*



## Curved Rail

### Guided Track Systems

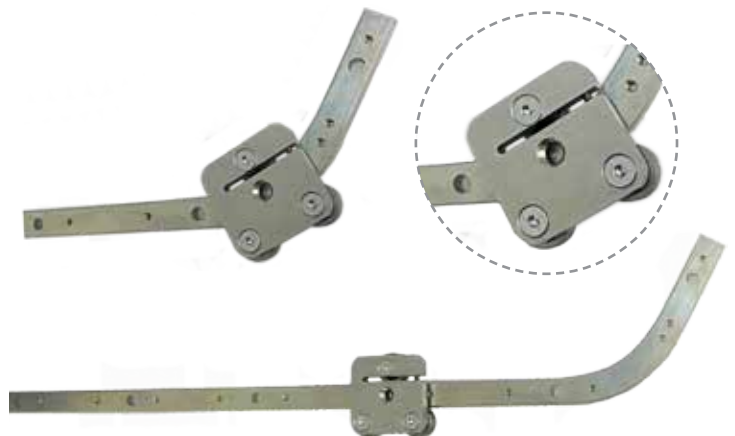
- Lightweight Conveying
- Pass-Through Chamber
- Station Transport Systems
- Door Track Guides

For transporting light payloads we have developed our own curved rail products. One or more moving blocks are guided by rails made to fit your motion profile needs.

Our in house manufacturing allows us to make the block and rail geometry fit your application.



Custom block design available for all systems.



Mobile Vehicle Door Slide System  
*Challenge: Enable Door to Pull Tight Upon Closing*



## Washdown

### Wet and Moist Environments

- Food & Beverage Processing
- Refrigeration Systems
- Part Washing Equipment
- Marine Seaport Systems

Our telescopic linear guides for washdown or corrosive environments are made of a high quality stainless steel (i.e., SUS 304 or 17-4 PH). Some are post processed with special plating or coating to enhance their durability. Food compatible lubricants are used on the moving components to reduce friction and wear.



**Stainless Steel Telescopic Linear Guide**  
*Challenge: Food Processing Washdown Requirement*

Other applications may only require a special plating or coating to enhance resistance to oxidation (i.e., rusting).



**Corrosion Resistant Linear Guides**  
*Challenge: Outside Exposed to Weather*



**Corrosion & Shock Resistant Drawer Slides**  
*Challenge: High Shock Loads & Dirty Environments*

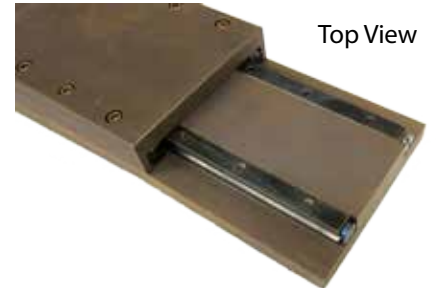


## High Temperature

### Furnace & Oven Environments

- Cooking & Baking Systems
- Steel Production Systems
- Glue & Adhesive Curing Systems

Applications in a high heat environments usually require special materials and surface treatments. Standard quality bearing steel will temper back and lose some of its load carrying capability when in environments



**High Temperature Crossed Rollers**  
*Challenge: Oven Environment 700 deg F*

above 300 deg F for an extended length of time. Our continuous R & D efforts have provided us with good solutions to address many of these applications.



## Military Grade

### Aerospace & Mobile Vehicles

- Aerial Scanning
- Bomb Detection Robot
- Security Scanning
- Auxillary System Support

Some projects require special handling, extensive documentation and strict control. We have a quality system in place to address all these requirements. DFARS, ITAR, and other related compliance requirements are reviewed prior to moving forward on sensitive military projects.

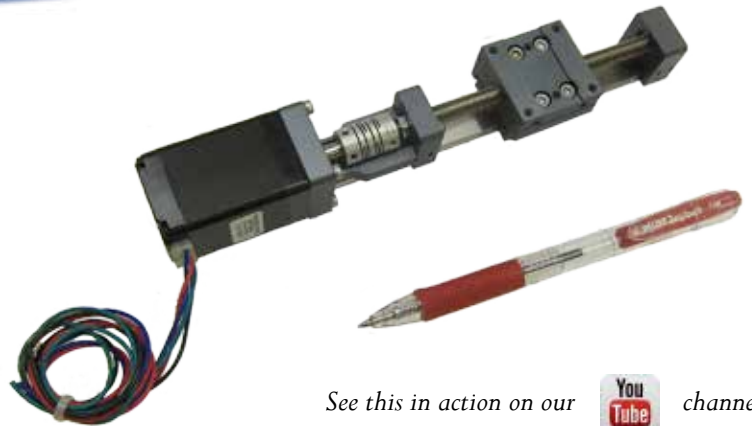



**Airborne Turret Positioning System**  
*Challenge: Precise Movement w/ High Resolution Position Feedback*



## **MINIBOT™ PRECISION ACTUATORS**

- Barebones Economical Design
- Very Compact Package
- Stepper Motor Driven
- Highly Configurable
- Ball or Leadscrew
- Maintenance Free
- Long Life



See this in action on our  channel.

## **New and Improved Version of Minibot™ Family!**

Our economical miniature linear actuator provides you with everything you need and nothing more! Adaptable design allows you to connect single axis units to create multi-axis **xy** or **xyz** systems.

The Minibot™ family of actuators is built around industry standard linear bearings and motor frame sizes.

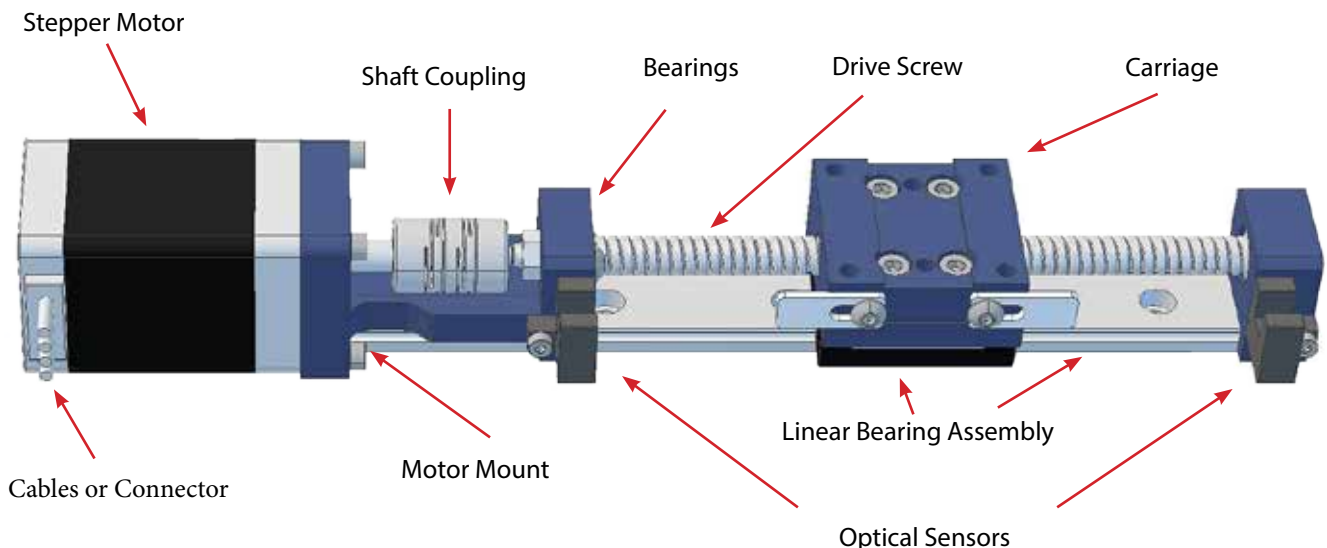
The design is well thought out, allowing any Minibot™ to be configured to deliver the load capacity, speed, and precision your application requires.

All Minibots™ are built from high quality components that provide high reliability and long life.

For OEMs with special requirements, we can modify our standard minibot or design a completely new product to precisely fit your application.

### **You can find these used in some of the following applications:**

- Assay Systems (microwell plate handling)
- Life Science Equipment
- Desktop Medical Devices





# A Little About Us

*We are a solution provider with a century of combined engineering experience. Many of us have evolved through the rotary bearing or linear motion industry.*

*To help us bring a complete linear product offering to the market we partner with a handful of high quality manufacturing companies around the world.*

*With this arrangement we can select the best components and quickly integrate them into our systems.*

**ISO 9001:2008 Certified**



**MADE IN THE U.S.A.** We reserve some machining capacity to quickly make prototypes and samples for OEM customer applications. We understand that putting these parts in your hands in a timely manner can mean all the difference in helping you succeed.



During the development stage of a new design real world testing sometimes reveals additional requirements that warrant a design revision. With our in-house machining capability these iterations can be quickly turned around.



We are continuously improving our ability to measure and inspect parts. Very small parts require microscopic inspection equipment in temperature controlled environments.

Other capabilities include in house testing as well as **DFMEA**, **PFMEA**, and **APQP** support.

We also support those projects requiring certification and material traceability such as Military and others with Intellectual Property assets.

**TO SEE MORE OF WHAT WE DO VISIT OUR WEBSITE OR CALL US TO DISCUSS YOUR APPLICATION.**

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