



**Manufacturing Technology, Inc.**  
Worldwide Service & Support

MTIwelding.com

## MACHINE ALIGNMENT SERVICES

Keeping your MTI friction welding machines level and aligned reduces scrap and improves profitability. It's what you're looking for. It's what MTI Alignment Services is all about.

## Your MTI Friction Welder May Be Out of Alignment if:

- Your shop floor's unevenness, cracking, and shifting is having a negative effect on your machine's performance. You're not sure what to do about it.
- Welded parts are outside of their specified tolerance limits. These parts are now scrap.
- Attempts at self-alignment do not correct my out-of-spec parts. Now you've wasted production downtime trying to fix something you're not equipped to do.
- Your post-weld part inspections do not consistently achieve the required angularity, concentricity, perpendicularity, squareness, or parallelism limits. This means you are creating scrap, burning through material, increasing your production cycle, and losing money.
- Your machine "walks", or vibrates, away during its operation, forcing you to "chase after it". Expensive arrangements have to be made to return it back to its original position.

Well, the good news is it's not you. The better news is that the solution is easy. Call the Alignment Service Experts at MTI.

Our Machine Laser Alignment Service Technicians know that keeping your machine level and aligned at all times helps it to operate properly.



Surface Flatness  
& Straightness  
Measurement  
System



Accurate down to .0002 in. (.005 mm).

## PEACE OF MIND

A correctly leveled machine base will go a long way towards reducing scrap, improving SPC numbers, and boost your bottom line. Here's how our certified technicians will help you do that using Faro Laser Tracker and Hamar Laser® measurement systems:

- Resecure base anchors then level the machine base
- Align the slideways and rails to be flat and parallel to the welding surfaces
- Align the fixtures to the mean spindle weights and flywheel combinations
- Perform a Spindle Bearing Deflection check
- Perform part checks against part specifications



FARO Laser Tracker

Accurate, large volume 3D measurement

Accurate up to .0006 in. (.015 mm)  
Spherical Volume up to 525 ft. (160 m)

*MTI's Worldwide Services meets critical specifications from Aerospace, Automotive, Oil & Gas, and many other industry standards.*

Alignments applied to all, and no, flywheel combinations include:

**Tool Mounting Surface to Spindle Parallelism Check** — Spindle centerline squared to the tailstock tool mounting surface across all slide positions.

**Slide Travel/Spindle Axis Parallelism** — Slide/Tailstock travel set parallel to the spindle axis of rotation.

**Slideway Levelness** — Slideways (a.k.a. ways) longitudinally and transversely leveled during slide movement along the ways.

**Spindle Deflection** — Spindle deflection radially adjusted to less than specifications, as measured on the spindle nose diameter when a specified force is applied to the nose.



## CHECKS

Total Indicator Reading (T.I.R.) checks are performed at machine operating temperatures. Here are the checks to be performed during alignment:

**Base Bed Ways** — a Vertical Flatness and Horizontal Straightness variation check throughout the length of the ways or rails.

**Fixture Horizontal and Vertical Squareness** — measurements are made with the Fixture Face Spindle Adapter parallel and perpendicular to the ways and rails.

## T.I.R. ADJUSTMENTS

MTI Alignment Technicians will make Adjustments on the:

**Spindle Nose and Spindle Adapter Radial and Flatness Checks** — are conducted through Spindle Nose Adapter Radial Run-out, Spindle Nose Flatness, Spindle Adapter Radial Run-out, and Spindle Adapter Flatness.

**Spindle Nose Face** — measured on the adapter locating surfaces, while Spindle Nose Radial Run-out is measured on the adapter locating surface.

**Tooling Adapter Plate** — run-out shall be within specifications when measured from the spindle nose face locating surface, while Tooling Adapter Plate Radial run-out shall be within limits as measured from the spindle nose radial surface.

*MTI has over 800 friction welders in operation worldwide, and the know-how to keep them operating at peak performance.*

## **MTI Worldwide Service & Support... It's Personal!**

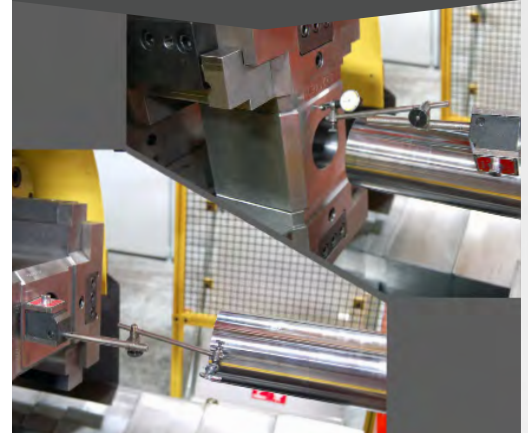
*Spindle Alignment Verification*



*Steady Rest Adjustments*



*Tooling Alignment Verification*



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## WORLDWIDE SERVICE & SUPPORT

574.233.9490 | 44.1384.277502 | [MTIwelding.com](http://MTIwelding.com)

Peace of mind is complete confidence, knowing you have the finest machine in the world, backed by the finest support at all times. It's knowing that obstacles to keeping your machine operating at optimal performance will be met with a quick, sure-handed response.

