

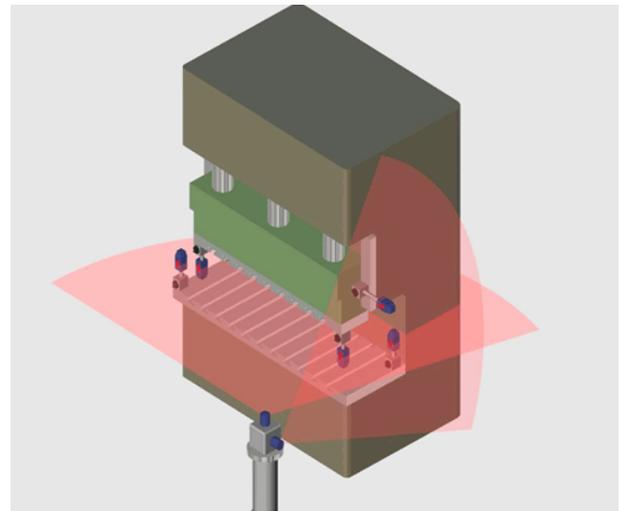
# L-743 Ultra-Precision Press Alignment System

## System Recommendations

L-743 Ultra-Precision Triple Scan® Laser System



The L-743 Ultra-Precision Triple Scan® Laser is the ideal instrument to quickly and accurately calibrate the geometry of almost any kind of press. The critical alignment of any press is the parallelism of the upper and lower rams to each other and squareness to the way (gib). The ways also need to be parallel. Poor alignment results in poorly formed parts that need to be scrapped and excess wear and tear on the press itself.

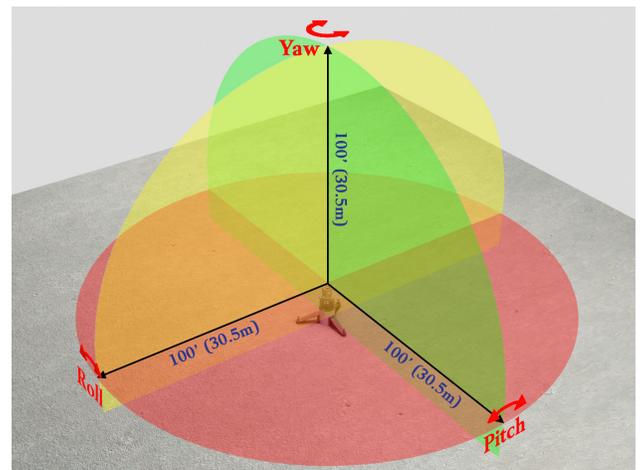


## Ram Parallelism Made Simple with Rotating Laser Planes

Simple to use and easy to set up, the L-743 is the ideal instrument to measure upper-and-lower-ram parallelism. A simple setup procedure positions the laser plane parallel to the fixed ram. Targets are then repositioned (turned upside down) to the movable ram and parallelism is easily measured. With Hamar Laser's Plane5 Software, setup and parallelism measurements are achieved even faster. And once the laser has been set up, if errors are found, they can be fixed immediately without having to change the setup.

## Complete Way Squareness Measurements in Two Setups

With the L-743's built-in squareness (each laser plane is square to each other with an accuracy of up to one arc second), measuring the perpendicularity of the way (gibs) to the rams is a simple task. In fact, with just two set-ups you can measure all 4 ways (gibs) for squareness in 2 axes. And since the data is live, squareness errors can be fixed without changing the setup. Given that the laser has a range of 100 feet (30.5 meters), the entire length of even the largest press can easily be measured for squareness.



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## Significantly Reduce Downtime when Changing Tools

Changing punches and dies is time consuming and realignment is a necessity. If a ram is out of parallel to the dies, poor part quality and costly premature punch and die wear can occur. Inadequate alignment also results in excess wear on the press itself and can even lead to way (gib) damage. With the high cost of machine overhauls, proper alignment becomes a big cost saver.

## Continuously Sweeping Lasers and Live Data Reduces Downtime

Continuously sweeping lasers and live data output create a powerful combination to align presses up to 70% faster than traditional methods. Downed machines will be up and running, producing quality parts in record time. HLI's continuously sweeping lasers are far superior to other point-and-shoot laser systems that require time-consuming manual laser rotation and target setup for each point measured. They also allow the use of multiple targets, which is especially helpful for large machine tools.

By providing live alignment data, misalignment errors can be quickly and easily fixed without having to change the setup. This is a tremendous benefit, especially if you are used to using inside micrometers or tram bars, where the entire length of an axis must be measured before the straightness or flatness can be determined.

## L-743 Significantly Reduces Stack Up Errors

One of the biggest problems with aligning machinery using conventional methods is that many different alignment tools must be used, requiring a lot of time and increasing stack-up errors. Another problem is that an alignment is only as good as the tools used to perform it. The machinist level is a good example: it has a resolution of .0005 in./ft., not very accurate for today's ever-tightening tolerances.

The L-743 laser planes, by contrast, have a flatness of 1/2 an arc second (.00003 in./ft or 0.0025mm/m. The laser planes are square to each other to within one arc second (0.00006"/ft or 0.005 mm/M). They further have the advantage of creating a single reference from which to measure machine geometry, significantly reducing stack-up errors.

## Squareness Built into Laser Head

One of the L-743's greatest features is its built-in squareness. You will be amazed at how quickly and easily the squareness of not just one axis, but multiple axes can be measured, usually with one setup! The L-743 takes just 10 minutes to set up and, unlike a cylindrical or knee square, the L-743 can check the entire length of machine travel, up to 100 feet (30.5 m), not just 12 in. (305 mm) or 24 in. (610 mm) length of the granite square.

## Wireless Targets and Readout Speeds Setup

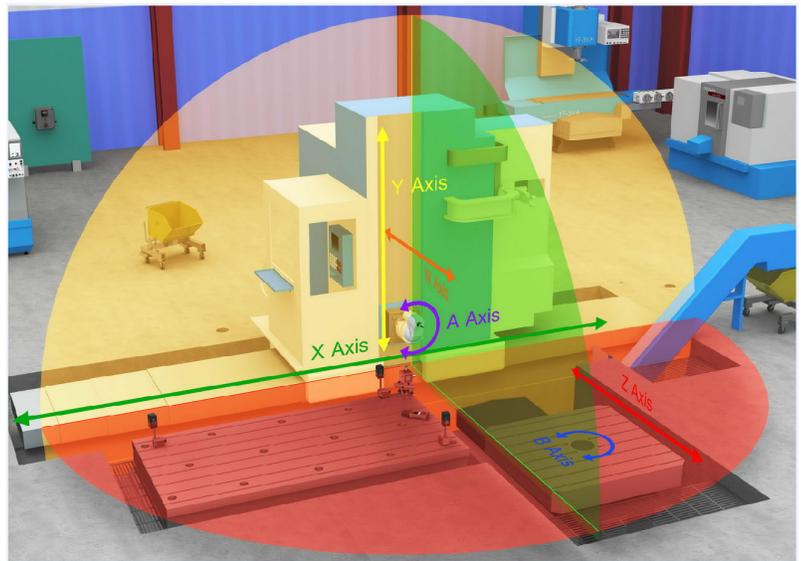
With Hamar's line of wireless targets (A-1519-2.4ZB and A-1520-2.4ZB), there is no need to string long extension cords to reference targets. The targets have up to a 1 in. measuring range, a resolution as low as .00001 in. (0.00025 mm) and can be used up to 100 feet (30.5 m) from the readout. The R-1356-2.4ZB. Readout uses a PDA, color software and a wireless receiver to display up to 5 targets simultaneously. Other features like electronic zeroing and target averaging help to speed setup and alignment.

### Recommended System Configuration

L-742 Ultra Precision Dual Scan® Laser  
A-1519-2.4ZB Single-Axis 2.4GHz Wireless Scan Target  
R-1355-2.4ZB Ruggedized Nomad PDA w/Read9 Software  
A-910-2.4ZB Computer Radio Interface  
L-106 Instrument Stand including A-809XL2 Case with Wheels

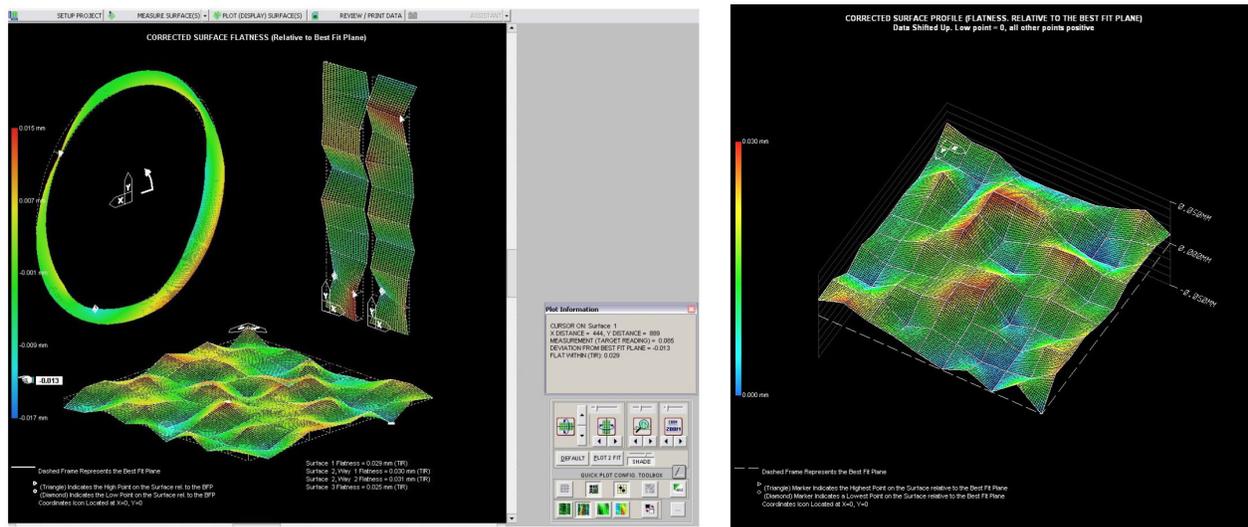
### Recommended Systems for Machine Tools

- Lathe and Turning Applications
- Machining Centers, Gantries, Boring Mills
- Metal/Roll Forming Presses
- Rotary-Dial Machines
- Surface Grinders
- Transfer-Line-Spindles
- Transfer-Line Wing Bases



## Plane5 Software Quickly Collects and Analyzes Data

Plane5 alignment software, combined with newly designed computer interfaces, makes collecting and analyzing machining center alignment data faster and easier. Our software is all Windows based and provides large, color graphics. Alignment reports clearly and concisely show the machine's condition



Hamar Laser's Plane5 Software

## Features

- Three continuously rotating laser planes with operational range of 100 feet (30.5 m) in radius.
- Laser planes flat to  $\frac{1}{2}$  an arc second (.00003 in/ft or 0.0025 mm/m) in  $180^\circ$  sweep and  $\frac{1}{4}$  arc second (.000015 in/ft or 0.001 mm/m) in  $90^\circ$  sweep.
- Planes are mutually square with an accuracy of up to one arc second (.00006 in/ft or 0.005 mm/m).
- Includes Pitch/Roll/Yaw base with coarse and fine adjustments.
- High Accuracy Targets: A-1519-2.4ZB Single-Axis, Wireless Target with 1 in. (24.5 mm) Measuring Range and .00002 in. (0.0005 mm) Resolution.
- Ultra Accuracy Targets: Uses A-1520-2.4ZB Single-Axis Wireless Target with .250 in. Range and .00002 in. (0.00025 mm) Resolution for higher accuracy applications.
- Standard illuminated levels accurate to 2 arc seconds (.00012 in./ft or 0.01 mm/m). High accuracy split-prism upgrade levels accurate to 1 arc second.
- Typical setup time 20 minutes or less.
- Battery or AC powered.