

# Injection Molding

### System Recommendations

- L-732 Dual Scan® Injection Molding Machine Laser



The L-732 Precision Dual Scan® Laser is the ideal instrument to quickly and accurately calibrate the geometric alignment of almost any kind of injection molding machine. It is a powerful tool that not only *finds*, but also *fixes* geometry problems, all in a fraction of the time needed with conventional methods.

The critical alignments of any injection-molding machine are platen-to-platen parallelism, guideway flatness/straightness and guideway squareness. Poor alignment results in premature wear on the mold, part flashing, and stress on tie bars, which can cause breakage. With long lead times and mold costs as much as \$250,000 or more, proper alignment becomes critical.

### Platen Parallelism Made Simple with Rotating Laser Planes

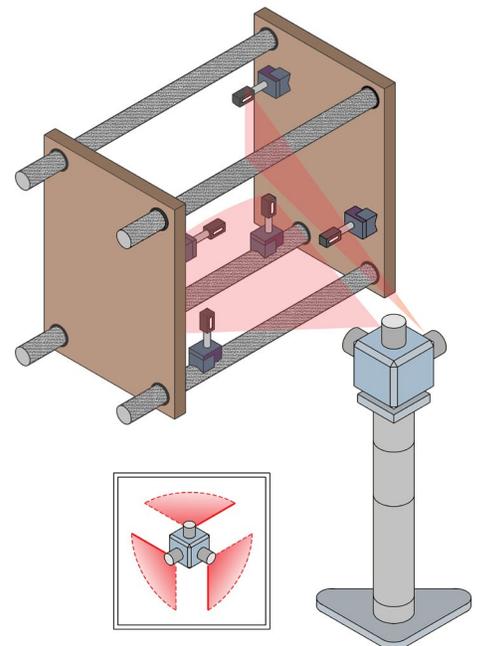
The L-732 is simple to use and easy to set up, making platen alignment easier than ever. A simple setup procedure positions the laser plane parallel to the fixed platen. Targets are then repositioned to the movable platen and parallelism is easily measured. The laser can also be used to measure the parallelism of the molds to the platen. And once the laser has been set up, any errors found can be fixed immediately without having to change the setup.

### Easy Guideway Squareness Setup

With the L-732's built-in squareness, (each laser plane is square to each other) measuring the perpendicularity of the guideways to the fixed platen is a simple task. Just align the top laser plane to the guideways and the second laser measure measures the fixed platen for squareness. 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) in radius, even the entire length of the largest injection molding machines can easily be measured for squareness.

### Significantly Reduce Downtime when Changing Molds

Changing a mold is time consuming and realignment is a necessity. If a mold is slightly out of parallel to the platen, costly flashing and premature wear can occur. Inadequate alignment also results in excess wear on the injection-molding machine itself and can even lead to tie-bar breakage. With each tie bar costing at least \$10,000, proper alignment becomes a big cost saver. The L-732 not only speeds the alignment process significantly, but also reduces tooling and maintenance costs.



*Aligning an Injection Molding Machine*



## **Continuously Sweeping Lasers and Realtime Data Reduces Machine Downtime**

Continuously sweeping lasers and live data output create a powerful combination to align injection molding machines 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 realtime alignment data, misalignment errors can be quickly and easily fixed without having to change the setup. The targets come with powerful magnetic bases for maximum stability, so you can leave them on adjustment points (even horizontally!) when bringing the machine back into alignment. This is a tremendous benefit, especially if you use multiple targets, as you can literally watch the entire platen come back into alignment.

## **L-732 Significantly Reduces Stack-Up Errors**

One of the biggest problems with aligning machine tools of all types 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" per foot, which is not very accurate for today's ever-tightening tolerances.

The L-732 laser planes, by contrast, are flat to .00012 in/ft (0.015mm/m) in a 180° sweep. The laser planes are also square to each other to within 2 arc seconds. They further have the advantage of creating a single reference from which to measure machine geometry, significantly reducing stack-up errors.

## **Wireless Targets and Readout Speeds Setup**

With Hamar's wireless targets (A-1519-2.4ZB and 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 .00002 in. (0.0005 mm) and can be used up to 100 feet (30.5 meters) from the readout. The new R-1356-2.4ZB Ruggedized Nomad PDA Readout comes with Read15 software and a wireless receiver to display up to 4 targets simultaneously. Other features like electronic zeroing and target averaging help to speed setup and alignment.

## **Software Quickly Collects and Analyzes Data**

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

## **Alignment System Features**

- 2 automatically rotating laser planes.
- Laser plane flat to 2 arc seconds (.00012 in/ft or 0.012 mm/m)
- Planes/beams are mutually square to 2 arc seconds
- Standard Target: A-1519-2.4ZB Single-Axis, Wireless Target with 1 in. (25 mm) measuring range and .00002 in. (0.5 micron) resolution.
- Backlit levels accurate to 2 arc seconds.
- Typical setup time 20 minutes or less.
- Multiple mounting orientations.
- Battery or AC powered.
- Includes L-124 Pitch/Roll/Yaw base with coarse and fine adjustments.

## **Recommended System Configuration**

L-732 Precision Dual Scan® Laser  
A-1519-2.4ZB Single-Axis Wireless Target  
R-1356-2.4ZB Readout with ruggedized Nomad PDA and Read9 Software  
L-106 Instrument Stand w/A-809XL2 Case with wheels  
A-808XL Shipping Case

## **Computer Accessories**

R-342 Notebook Computer  
A-910-2.4ZB Computer Radio Interface  
S-1388 Plane5 Software

## **Alternative Laser Systems**

L-733 Precision Triple Scan® Laser Alignment System  
L-730 Precision Leveling Laser System