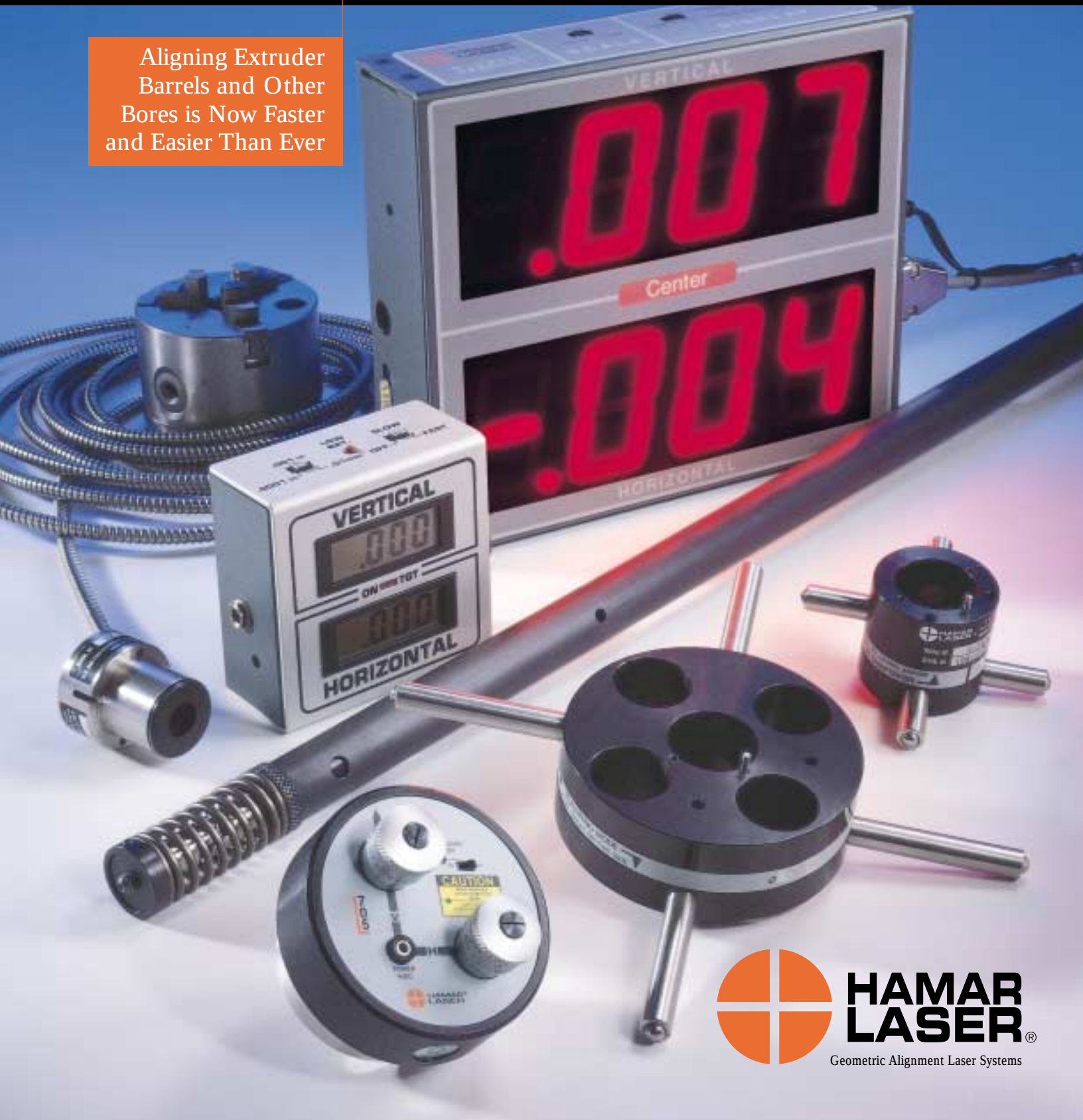
L-705 & L-706
Laser Bore Scope Systems

Aligning Extruder Barrels and Other Bores is Now Faster and Easier Than Ever



HAMAR LASER®

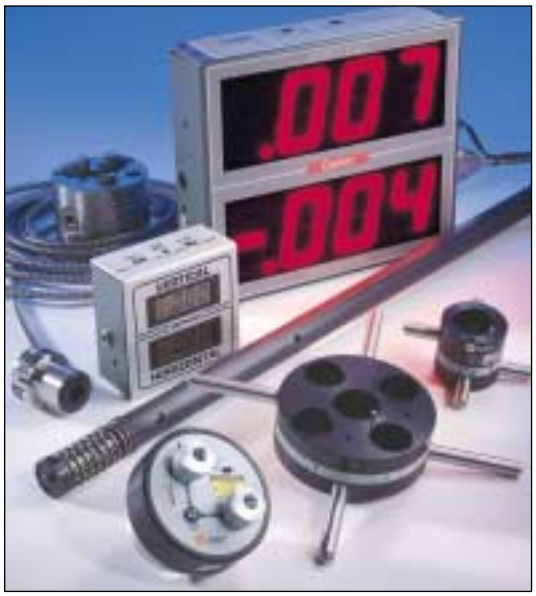
Geometric Alignment Laser Systems

Laser Bore Scope Systems for Extruder and Other Bore Alignments

Misaligned extruders cause screws and barrels to wear out quickly requiring frequent replacement, resulting in increased downtime and higher maintenance costs.

Extend Screw/Barrel Life Up to 3×

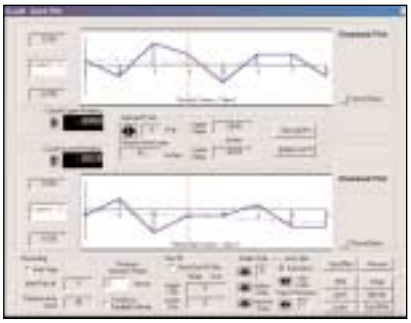
Hamar Laser Bore Scopes utilize a precision laser and target assembly to detect — then help correct — extruder barrel misalignment. Real-time measurements of barrel-to-gearbox parallelism, straightness and barrel wear allow users to monitor alignment conditions and prevent big problems before they occur. When properly aligned, our customers tell us that barrels and screws last up to 3× longer!



Complete systems start at $11,995 and include laser, target, pole, chuck fixture, readout, barrel adapter and cases.

2 to 3× Faster Than Optical Bore Scopes

Alignment of an extruder barrel or bore is extremely fast and easy: Set-up takes five to ten minutes. Alignments are completed 2× to 3× faster than with conventional optical bore scopes.



Optional computer upgrade showing plot of bore straightness.

Simple Set-Up

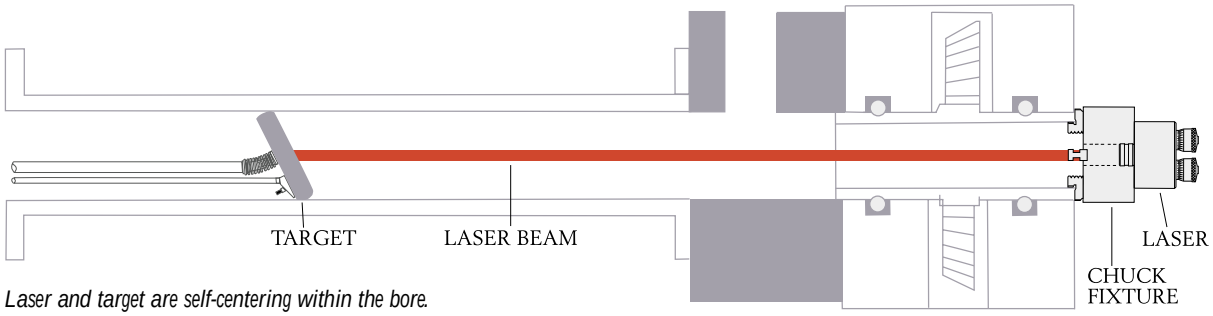
The front-mount/rear-adjust L-705 is designed to mount within the extruder gearbox counter bore. The laser beam "projects" the axis of rotation down through the counter bore of the gearbox to a self-centering target located inside the barrel. (See drawing below.)

A simple inversion (0˚+180˚) of the laser means rapid alignment of the laser beam to the gearbox axis-of-rotation. This process removes the mechanical mounting errors of the laser, resulting in an extremely accurate alignment of the free end of the barrel to the gearbox. A hand-held, battery operated, two-axis (vertical and horizontal) readout shows "instant" misalignment to .0005" of true centerline — in real time.

Complete Laser Bore Scope packages — including laser, target, pole, chuck, readout and case — start at $11,995.

Laser Bore Scope Features:

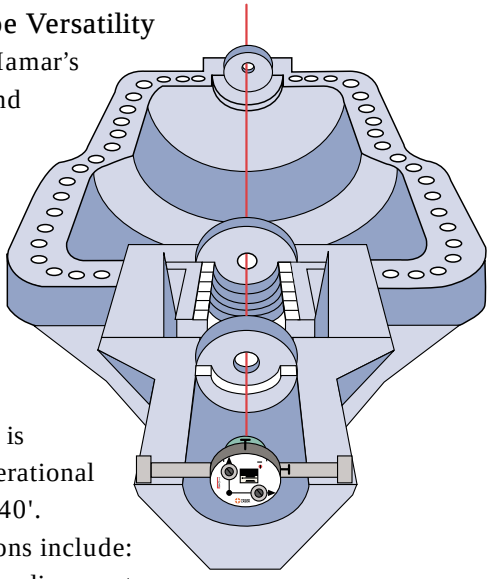
- Simple, 10-minute procedure
- Self-centering laser & target
- 2-Axis, "real-time" display
- Alignment to .0005" of centerline
- Operational range to 100'
- Compact, rugged, portable design
- Optional computer upgrade
- Complete systems starting at $11,995
- Adaptable to most bore applications



Laser and target are self-centering within the bore.

Laser Bore Scope Features

Laser Bore Scope Versatility



Combined with Hamar's wide range of 2 and 4-axis targets, the L-705/706 bore scope lasers can be used for a multitude of bore alignment and measurement applications.

- The L-705 laser is designed for operational ranges of up to 40'.
  Other applications include:
  - Bearing bore alignments
  - Bearing centerline measurements for crankcases
  - Straightness measurements for cylinders
  - Hinge-line alignment for aircraft
  - Diaphragm, seal, oil bore and inner shell alignments for turbines

- The L-706 laser is designed for long distance applications (40' to 100'), like large steam turbines and compressors.

Micrometer Controlled Angular Adjustment

Micrometers on the back of the laser provide precise "pointing" control over the laser beam as it projects through the mounting chuck down into the barrel during alignment. By adjusting each micrometer, an operator can set the laser beam parallel to the gearbox axis of rotation.

Preset Beam Centering

The L-705 and L-706 lasers do not require any centering adjustment. The instrument housing and laser beam aperture are precisely machined so the beam is concentric to the housing to within .0005".

Instant Set-Up

With this precision ground laser housing, mounting is simple. Insert the "front" of the laser into a 0.75" hole in a mounting fixture. The fixture is then inserted into the counter bore of an extruder gearbox or reference bore. Several attachment devices are provided by Hamar Laser.

Self-Centering Target

The self-centering target and customized adapter are used to take centerline and comparison diameter readings of bores:

- In "Self-Centering Mode," the target is inserted into a bore or free end of an extruder barrel, automatically finding center without any moving parts, even if there is barrel wear. The readout cable serves as a release cord to withdraw or reposition the target. With extension cables and poles, the target can be inserted up to 30' into the barrel or a long bore.

- In "Measurement Mode," the adapter is turned around and the target is used to quickly measure barrel/bore diameters and barrel wear. The target is set to a reference diameter and then moved to a measurement point, where the difference in diameter from the reference bore is measured.

Visible Beam Light

This low power, visible light laser beam makes coarse alignment easy. No viewing devices are required for operation.

Optional Computer Upgrade

Data can be collected/displayed in real time with optional laptop upgrade.

Compact, Rugged Design

These compact lasers are built of durable materials which are hardened to withstand factory environments. Both the L-705 and L-706 lasers are light-weight (1.2 lbs.) and portable. They can even be stored as carry-on luggage in an airplane!

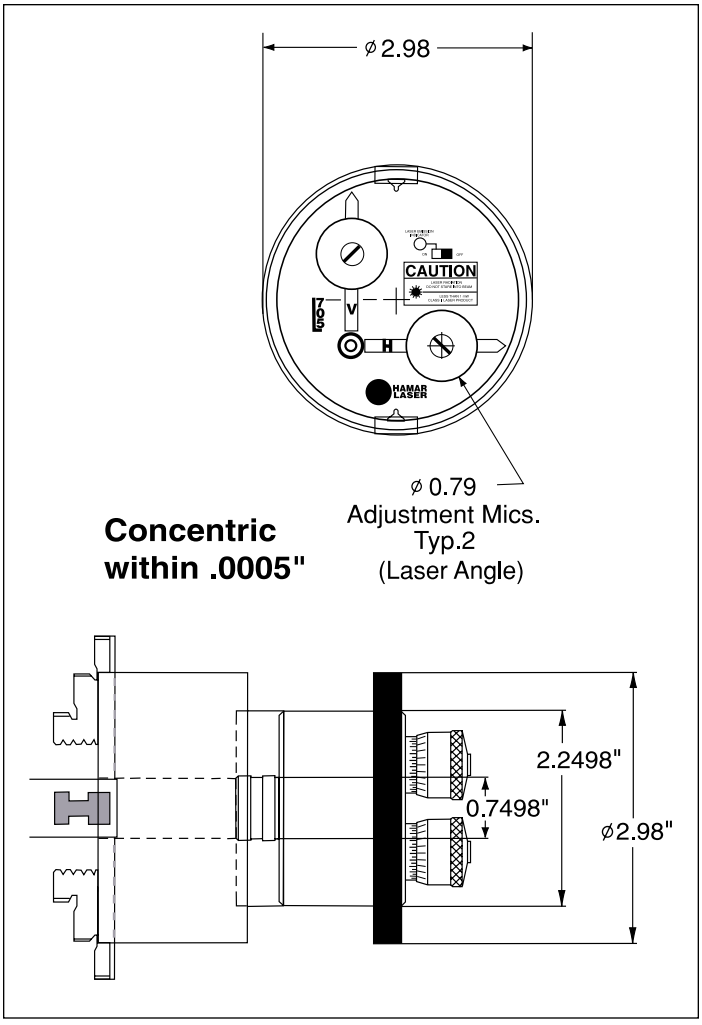
Battery Operation

The L-705 and L-706 lasers will operate for up to 8 hours on a battery pack with standard, replaceable 9-volt cells. An AC adapter is also provided for continuous operation.

Specifications

L-705 and L-706 Lasers

Size	(See line drawings)
Weight	1.2 lbs. (0.5 kilograms)
Power	9V external battery pack/AC adapter
Mounting	3-jaw self-centering chuck with diameter range of .87" to 3"
Center	Laser aperture ground concentric within .0005" (.01µm) No adjustment
Angle	Controlled by two micrometers. Angle can be repeatably set within .0002"/ft. (0.017mm/meter) L-705 (.001" on micrometer = .010" tilt @ 33 ft.) L-706 (.001" on micrometer = .010" tilt @ 100 ft.)
Angular Adj. Range	L-705: ±0.18˚ ± .0375"/ft. (± 3.13mm/meter) L-706: ±0.06˚ ± .0125"/ft. (± 1.04mm/meter)
Operating Distance	L-705: 33 ft. (10.0 meters) Recommended L-706: 100 ft. (33.3 meters) Recommended
Laser Beam Diameter	Laser < 0.25 in./6.4mm Dia. [Up to 30 ft./9m]
Power	Laser < 1 mW Cw, BRH Class II
Laser Wavelength	670 nanometers
Materials	Aluminum Flange. All mounting surfaces: 440 SS. Aperture: Hardened and ground in one setup (RC 54-60).



HAMAR LASER®

Hamar Laser Instruments, Inc.
5 Ye Olde Road, Danbury, CT 06810
Phone: 800.826.6185 • Fax: 203.730.4611
E-mail: sales@hamarlaser.com
www.hamarlaser.com

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