

# Lasers & Accessories

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## Optics

Lenses & Microscope Components

Coatings

Mirrors, Beamsplitters & Windows

Prisms & Polarizers

Filters

Pinholes

## Opto-mechanics

Tables, Breadboards & Rails

Mounting Hardware

Mirror & Component Mounts

Manual Micro-positioners

Motorized Positioners

## Lasers & Accessories

Beam Delivery

Laser Measurement

Diode Laser Modules

# Introduction to Beam Delivery Systems



Ealing offers a full assortment of laser beam delivery components manufactured by HAAS Laser Technologies, Inc. HAAS LTI is recognized as an innovator and technology leader providing one of the world's largest selections of laser beam delivery components, as well as custom laser systems.

## Design and Engineering

Design and engineering for specialized applications need creative thinking and solid engineering to find solutions. Haas Laser Technologies, Inc. will work directly with Ealing customers on specialized designs. A full team of electrical, optical, and mechanical engineers combine their disciplines and knowledge into each and every product.

## Manufacturing

Haas Laser Technologies, Inc. remains on the leading edge of technology by constantly updating and expanding their state-of-the-art facility. The latest CNC equipment combined with CAD-CAM technologies are used for the machining of every part. Quality inspections and tolerance specifications are checked by each individual machinist on every part to ensure total part quality.

## Technical Support

When choosing Haas LTI products, you have the expertise and support of the entire staff at your fingertips.

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# Kinematic Beam Bender

- $\pm 2$  deg. independent orthogonal mirror adjustment
- Fine 80 pitch adjustment screws
- Sealed design
- Available in a wide variety of standard and custom configurations

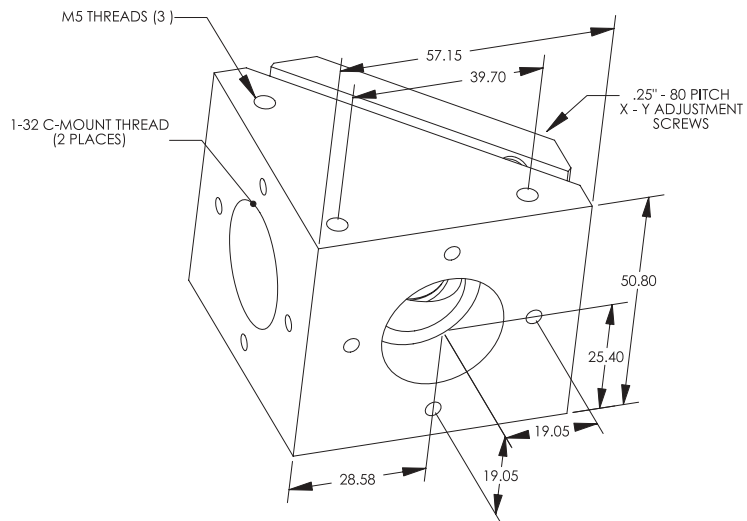


Kinematic Beam Benders provide a method to displace a laser beam by 90 degrees. Fine 80 pitch mirror adjustment screws enable precise, independent  $\pm 2$  degree angular mirror adjustment. Mirror installation and reinstallation can

be performed without affecting the mirror alignment. Available to accommodate various mirror diameters and thicknesses. Both ends have a 1"-32 female threads designed for standard optic sizes.

## 30-0410

Kinematic Beam Bender



## Kinematic Beam Bender

| Catalog Number | Description   | Price US |
|----------------|---|----------|
| 30-0410        | Beam Bender for 1.1" (27.9mm) dia. X 3mm thick optic. (18mm C.A.) | \$360.00 |
| 30-0420        | Beam Bender for 25.0mm dia. X 3mm thick optic. (16mm C.A.)        | \$360.00 |

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# Beam Delivery Tubes

## Optics

Lenses & Microscope Components

Coatings

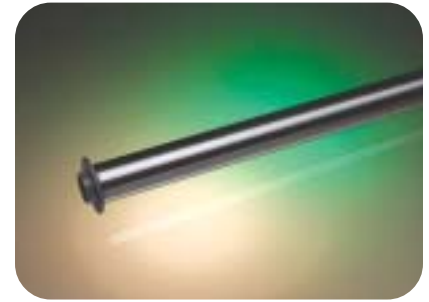
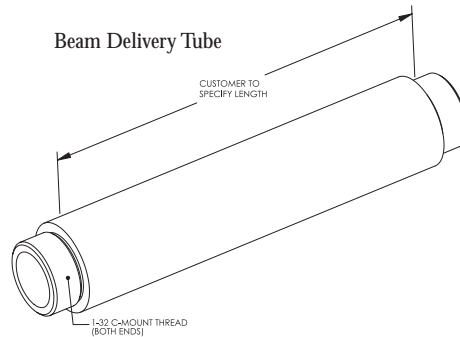
Mirrors, Beamsplitters & Windows

Prisms & Polarizers

Filters

Pinholes

- 19 mm clear aperture
- Provides rigid mounting of beam delivery components
- Available in a wide variety of standard and custom configurations



Beam Delivery Tubes are high-grade anodized aluminum tubes which provide sealed containment of the laser beam path. These beam tubes have a 19 mm clear aperture with a female 1"-32 thread on one end and a 1"-32 male thread on the other end. It provides a method to rigidly mount laser beam delivery components.

### Use with:

Process Heads  
Kinematic Beam Benders  
Linear Adjustable Mounts  
Beam Expander/Collimator  
All 19 mm clear aperture components

### Beam Delivery Tubes

| Catalog Number | Description                                   | Price US |
|----------------|---|----------|
| 30-0430        | 300mm Beam Delivery Tube- Female to Male ends | 80.00    |
| 30-0440        | 100mm Beam Delivery Tube- Female to Male ends | 60.00    |
| 30-0450        | 50mm Beam Delivery Tube- Female to Male ends  | 55.00    |
| 30-0460        | 25mm Beam Delivery Tube- Female to Male ends  | 55.00    |
| 30-0470        | 25mm Beam Delivery Tube- Male to Male ends    | 55.00    |
| 30-0480        | 12mm Beam Delivery Tube- Male to Male ends    | 55.00    |
| 30-0760        | Threaded (1"-32) Lock Ring                    | 26.00    |

## Opto-mechanics

Tables, Breadboards & Rails

Mounting Hardware

Mirror & Component Mounts

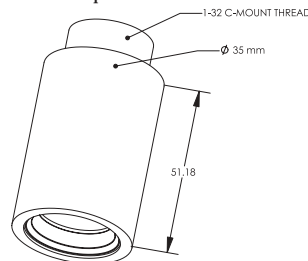
Manual Micro-positioners

Motorized Positioners

# Beam Delivery Tubes - Quick Mount

- 19 mm clear aperture
- Enables easy removal

### 30-0530 "Quick Mount" Coupler



Quick Mount Beam Delivery Tubes are high-grade anodized aluminum tubes which provide sealed containment of the laser beam path. These beam tubes have a 19mm clear aperture and can be easily cut to any desired length. Use with a "Quick-Mount" coupler on each end to complete the system. Each "Quick-Mount" coupler has a 1"-32 thread on one end with receptacle to slide-in and seal the beam tube on the other end.

### Beam Delivery Tubes - Quick Mount

| Catalog Number | Description                             | Price US |
|----------------|---|----------|
| 30-0490        | 300mm "Quick-Mount" Beam Delivery Tube  | 45.00    |
| 30-0500        | 600mm "Quick-Mount" Beam Delivery Tube  | 84.00    |
| 30-0510        | 1200mm "Quick-Mount" Beam Delivery Tube | 164.00   |
| 30-0520        | 1800mm "Quick-Mount" Beam Delivery Tube | 245.00   |
| 30-0530        | "Quick-Mount" Coupler                   | 48.00    |

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# Process Heads

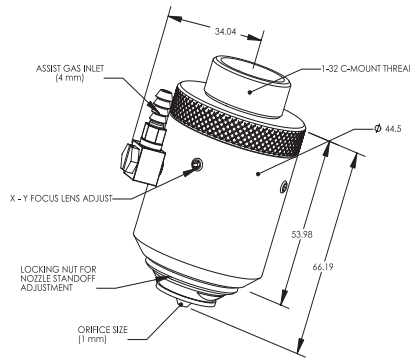
- 19 mm clear aperture
- X-Y lens centering adjustment
- Internal gas jet
- Nozzle tip standoff adjustment
- Available in a wide variety of standard and custom configurations



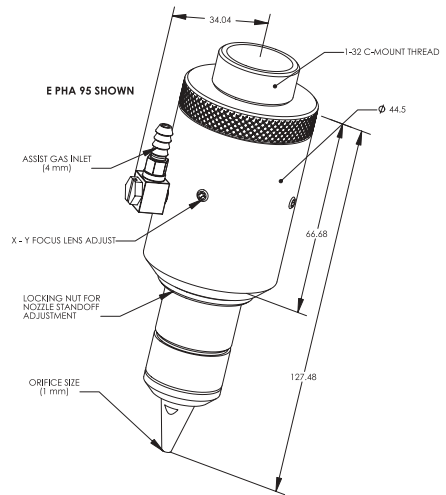
Process Heads provide a protective housing for the laser focus lens. Each Process Head is equipped with independent X-Y focus lens centering adjustments and gas jet nozzle tip

standoff adjustments. Male 1"-32 threads allow for easy mounting to other 19 mm components. Gas jet input fitting is provided for introducing assist gas to the workpiece.

**30-0540**  
Short Body Process Head



**30-0580**  
Long Body Process Head



Use with Linear Adjustable Mount



## Process Heads

| Catalog Number | Description  | Price    |
|----------------|--|----------|
| 30-0540        | Process Head for 1.1" dia. X 1.5" F.L. Focus Lens (Short Body) | \$550.00 |
| 30-0550        | Process Head for 1.1" dia. X 2.0" F.L. Focus Lens (Short Body) | \$550.00 |
| 30-0560        | Process Head for 1.1" dia. X 2.5" F.L. Focus Lens (Short Body) | \$550.00 |
| 30-0570        | Process Head for 1.1" dia. X 3.5" F.L. Focus Lens (Long Body)  | \$550.00 |
| 30-0580        | Process Head for 1.1" dia. X 3.75" F.L. Focus Lens (Long Body) | \$550.00 |
| 30-0590        | Process Head for 1.1" dia. X 5.0" F.L. Focus Lens (Long Body)  | \$600.00 |
| 30-0600        | Process Head for 1.1" dia. X 7.5" F.L. Focus Lens (Long Body)  | \$600.00 |

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# Beam Expander/Collimator

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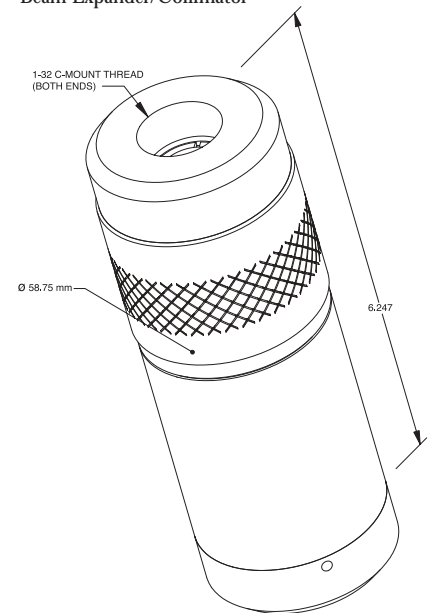
Pinholes

- 19 mm clear aperture
- Adjustable divergence control
- Galilean design
- Sealed design
- Available in a wide variety of standard and custom configurations



Beam Expanders/Collimators are designed to expand or reduce the laser beam diameter. Adjustable divergence control ring allows precise calibration. Sealed design prevents contaminants from entering into the beam path. The unit has a 19 mm output aperture and both ends have a 1"-32 female thread. CO<sub>2</sub> optics included.

Beam Expander/Collimator



## Opto-mechanics

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### Beam Expander/Collimator

| Catalog Number | Description  | Price US  |
|----------------|--|-----------|
| 30-0610        | 1.5X Beam Expander, Complete with CO <sub>2</sub> Optics | \$1225.00 |
| 30-0620        | 2.0X Beam Expander, Complete with CO <sub>2</sub> Optics | \$1225.00 |
| 30-0630        | 2.5X Beam Expander, Complete with CO <sub>2</sub> Optics | \$1225.00 |
| 30-0640        | 3.5X Beam Expander, Complete with CO <sub>2</sub> Optics | \$1225.00 |
| 30-0650        | 4.0X Beam Expander, Complete with CO <sub>2</sub> Optics | \$1225.00 |
| 30-0660        | 5.0X Beam Expander, Complete with CO <sub>2</sub> Optics | \$1225.00 |

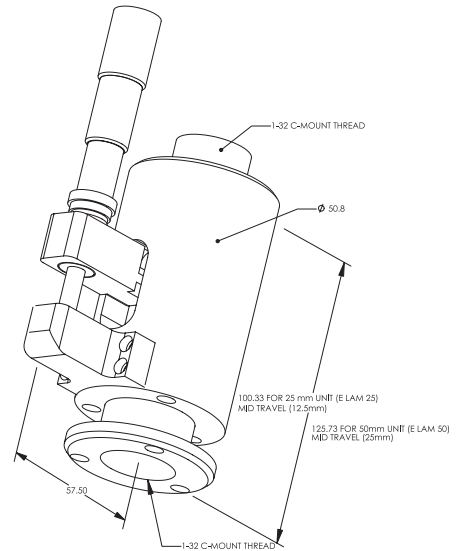
# Linear Adjustable Mount

- 19 mm clear aperture
- Available in 25 mm and 50 mm travels
- Mounts directly to 19 mm Process Head
- Sealed design
- Available in a wide variety of standard and custom configurations



Linear Adjustable Mounts, when attached to a Process Head, will provide fine adjustment of the focus spot relative to the workpiece. Each Linear Adjustable Mount has a 19 mm clear aperture with female 1"-32 threads on the bottom and 1"-32 male threads on the top. Sealed design prevents contaminants from entering into the beam path. The micrometer head design allows for precision linear adjustments.

**30-0670**  
Linear Adjustable Mount



## Use with Process Heads



## Linear Adjustable Mount

| Catalog Number | Description                            | Price    |
|----------------|--|----------|
| 30-0670        | Vernier Adjustable Mount . 25mm Travel | \$495.00 |
| 30-0680        | Vernier Adjustable Mount . 50mm Travel | \$595.00 |

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# Laser Tools

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Pinholes

- *Laser Tools designed to ease beam alignments and replace optics*

The Beam Bender Alignment target is designed to be used in conjunction with the Kinematic Beam Bender. The Process Head Alignment Target

is designed to be used with the Laser Process Head. The Optic Wrench aids in the installation and removal of the focus lens in the Process Head.

### Laser Tools

| Catalog Number | Description                   | Price US |
|----------------|-------------------------------|----------|
| 30-0690        | Beam Bender Alignment Target  | 45.00    |
| 30-0700        | Process Head Alignment Target | 45.00    |
| 30-0710        | Process Head Optic Wrench     | 45.00    |

# CO<sub>2</sub> and Nd:YAG Alignment Cards

- *Thermal sensitive*
- *Discolors to show laser beam profile*

Thermal sensitive laser alignment cards are used to align optical components to the laser beam axis. They can also be used to document the laser beam shape, mode, intensity, divergence and energy distribution. The AC-100 Thermal

Cards are designed for the CO<sub>2</sub> wavelengths and the AC-200 Thermal Cards are designed for the Nd:YAG wavelengths. Both types of thermal cards are sensitive over a broad spectrum. Cards are 82 mm x 187 mm in size.

### CO<sub>2</sub> and Nd:YAG Alignment Cards

| Catalog Number | Description                                   | Price US |
|----------------|---|----------|
| 30-0720        | CO <sub>2</sub> Thermal Alignment Cards (100) | 65.00    |
| 30-0730        | Nd:YAG Thermal Alignment Cards (100)          | 95.00    |

# Optic Cleaning Kit / Polish

- *Complete kit*
- *Optic clean procedures included*

The Optic Cleaning Kit contains everything required to properly clean optics. A laminated cleaning procedures card is included for reference. Included are the following components: Lens Cleaner, German Blower Brush, Cotton

Swabs, Lens Cleaning Paper, Finger Cots, Optic Holder, Hemostat Pliers, Optic Cleaning Card. Optional 0.1 micron Optic Polish is available in a 250 ml bottle.

### Optic Cleaning Kit/Polish

| Catalog Number | Description                  | Price US |
|----------------|------------------------------|----------|
| 30-0740        | Optic Cleaning Kit           | 62.00    |
| 30-0750        | Optic Polish, 0.1 µm, 250 ml | 30.00    |

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