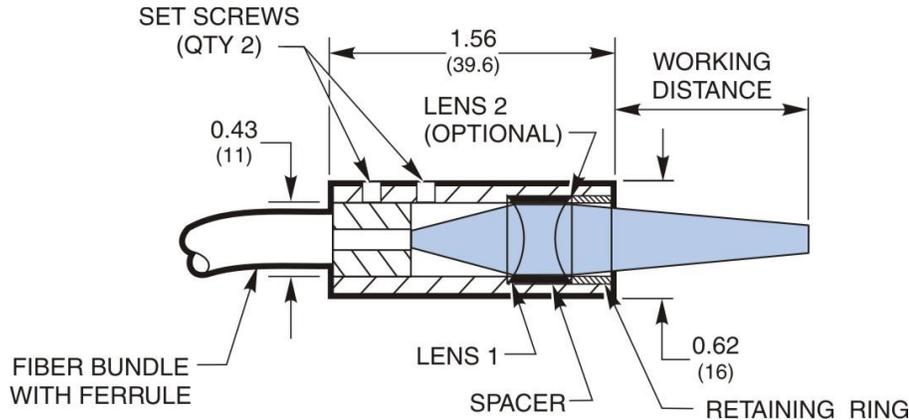


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## Model 77646 Focusing Beam Probe

The 77646 Focusing Beam Probe focuses the output of Oriel's Fused Silica Fiber Bundles. The fiber bundle is placed one focal length from Lens 1 and is secured using the set screw(s).



Lens 1 is a .5 diameter, 19 mm focal length, F/1.7 fused silica lens. The 77646 is shipped with this lens installed. This lens captures and collimates the diverging output from the fiber bundle.

If using only Lens 1, move the fiber bundle away from the lens to produce a focused image far from the probe. To image at short distances, Lens 2 is required.

When Lens 2 is installed, the collimated beam is focused one focal length from Lens 2. For lens selection, please refer to page 2 of this specification.

### **LENS 2 INSTALLATION INSTRUCTIONS**

1. Using a pencil with a soft, clean eraser on the back, push Lens 1, spacer and retaining ring until the retaining ring can be removed from the assembly.
2. Using the pencil's eraser, slide Lens 1 and the spacer back to their original positions.
3. Place Lens 2 in the probe body as shown in the diagram.
4. Squeeze the retaining ring slightly and slide it into the probe body until it is firmly in contact with Lens 2 and all items are properly secured.

### **CAUTION!**

- Do not touch lenses with bare fingers. Use gloves, finger cots or a lint-free tissue when handling.
- Ensure that both lenses are oriented as shown in the diagram. The crowns of Lens 1 and Lens 2 face towards the spacer.

## LENS 2 OPTIONS

Lens 2 can be ordered separately from Oriel Instruments at any time. The available options are shown in the table below, and are chosen based upon the image magnification and working distance required.

Lens 2 Model	Lens Focal Length (mm)	Working Distance (mm) * +	Magnification ** +	Output Beam (F/#) ***
41210	19	12	1	1.7
41220	25	18	1.3	2.3
41230	38	31	2	3.4
41240	50	43	2.6	4.5
41250	75	68	3.9	6.8

\* The working distance is 7 mm less than the focal length of Lens 2.

\*\* The nominal magnification is defined as the ratio of the focal lengths of Lens 2 to Lens 1.

+ To change the working distance and magnification, move the fiber bundle.

\*\*\* The value given is based upon the assumption that the beam from the fiber bundle fills Lens 1.

### **EXAMPLE**

Using a 77575 Oriel fiber bundle (1.6 mm dia), the choice of the 25 mm focal length lens [model 41220] results in a 2.1 mm diameter illuminated area.

## ACCESSORIES

The 77646 Focusing Beam Probe comes with a separate light baffle and O ring which may be used for additional light shielding, if needed.

## REPLACEMENT PARTS

Contact Oriel Instruments in the event that any parts are lost or a different model for Lens 2 is desired.

Set Screw	77643-1-1006
Retaining Ring	77650-2-1008
Spacer	77661-2-1008
O Ring	90-01-029
Light Baffle	77650-2-1009

### **TECH NOTE**

One cannot produce a well-collimated beam from a large aperture fiber bundle. The smallest divergence angle, for a perfect optical system, is given by:

$$\theta = \text{Tan}^{-1} (d/f)$$

Where:

- $\theta$  = Full angle divergence
- d = Fiber bundle diameter
- f = Lens effective focal length

## CONTACTING ORIEL INSTRUMENTS

Newport Corporation proudly serves customers across Canada, Europe, Asia and the United States through 9 international subsidiaries and 24 sales offices worldwide. Every year, the Newport Resource catalog is hailed as the premier sourcebook for those in need of advanced technology products and services. It is available by mail request or through Newport's website. The website is where one will find product updates, interactive demonstrations, specification charts and more.

To obtain information regarding sales, technical support or factory service, United States and Canadian customers should contact Oriel Instruments directly.

Oriel Instruments  
1791 Deere Avenue  
Irvine, CA 92606 USA

Telephone: 800-222-6440 (toll-free in United States)

Fax: 949-253-1680

Sales: [oriel.sales@newport.com](mailto:oriel.sales@newport.com)  
Technical assistance: [oriel.tech@newport.com](mailto:oriel.tech@newport.com)  
Repair Service: [rma.service@newport.com](mailto:rma.service@newport.com)

Customers outside of the United States must contact their regional representative for all sales, technical support and service inquiries. A list of worldwide representatives can be found on Oriel's website: <http://www.newport.com/oriel>.

## REQUEST FOR ASSISTANCE / SERVICE

Please have the following information available when requesting assistance or service:

Contact information for the owner of the product.  
Instrument model number (located on the product label).  
Product serial number and date of manufacture (located on the product label).  
Description of the problem.

If the product needs to be returned, a Return Material Authorization (RMA) number must be obtained prior to shipment to Oriel Instruments. This RMA number must appear on both the shipping container and the package documents.

Return the product to Oriel Instruments, freight prepaid, clearly marked with the RMA number and it will either be repaired or replaced it at Oriel's discretion.

Oriel is not responsible for damage occurring in transit. The Owner of the product bears all risk of loss or damage to the returned Products until delivery at Oriel's facility. Oriel is not responsible for product damage once it has left the facility after repair or replacement has been completed.

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First printing 1990

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