Housings for 200-500 W Mercury Lamps

Choice of five condensing lens assemblies
Built-in fan temperature sensor and fan control
Rear reflector increases arc lamp output
Safety interlock - shuts off lamp if housing is opened
Easily mounted to optical tables, rails, or benches

These lamp housings are designed for 200-500 watt mercury arc lamps. You can mount them to optical tables, rails, or benches. The variety of condensers available offer versatility in light collection. And, the collected light can be filtered, steered, focused, etc., by the range of directly compatible optical accessories.

The housings are similar to those described on the previous pages, but they have fan speed control and baffles to ensure correct operating conditions for the mercury lamps.

These lamp housings are part of the Complete Arc Lamp Sources found on pages 98 to 99.

Interchangable Lamps

The following lamps operate in these housings with the appropriate socket adapter:

Lamp Model No.	Lamp Type	Appropriate Socket Adapter
6283	200 W Mercury	66144
6286	350 W Mercury	66161
6285	500 W Mercury	66162

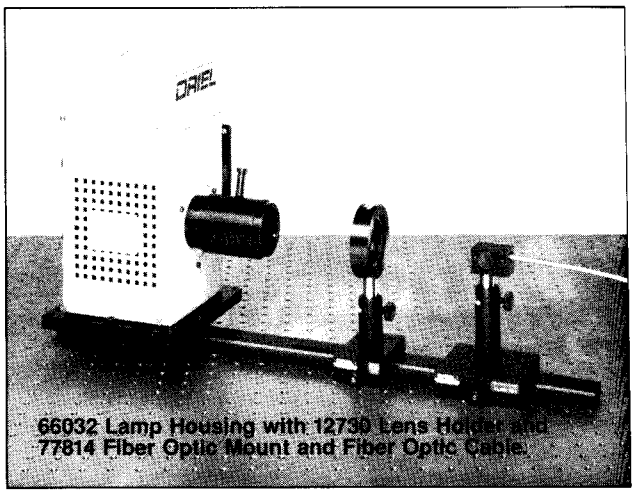
Details of these lamps are on page 104.

Light Collection Lamps

The optics of these lamp housings are shown in Fig. 1. Five different condensing lens assemblies are available. The choice of condenser specifies the housing. The range of condensers, from simple singlet through multi-element Aspherab™, meets most laboratory needs. Excellent collection efficiency and optical quality is available from the Aspherabs®; different aspects of performance are economically available from the other lenses. Lens performance is compared in the table on the following page.

These lenses are fixed inside a focusing sleeve. The sleeve has 1 inch (25.4 mm) of adjustment. The positioning capability enables you to create a collimated; converging, or diverging beam.

The spherical reflector (Fig. 1) located behind the lamp collects radiation and forms a 1:1 image of the source at, or close to, the source. The increase in output power can be as much as 60%.



66032 Lamp Housing with 12730 Lens Holder and 77814 Fiber Optic Mount and Fiber Optic Cable.

Lamp & Reflector Adjustments

The position of the arc (relative to the terminals which secure the lamp) varies slightly from lamp to lamp. This is because of normal arc lamp manufacturing tolerances. Oriel Lamp Housings have adjustments to compensate and place the arc of a new lamp in the same vertical and horizontal position as that of the lamp being replaced. Independent tilt controls allow the arc to be positioned horizontally and vertically, and three fine controls position the reflector. The reflector and its controls travel with the vertical and horizontal controls. This eliminates the need for iterative lamp-reflector adjustments.

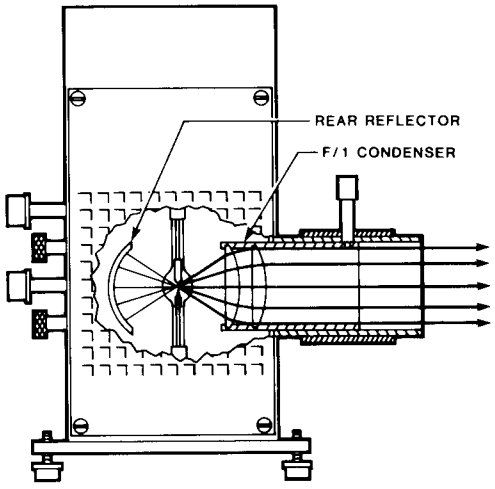


Fig. 1 66033 Lamp Housing showing F/1 condenser.

Condensers

The table below compares the collection efficiencies of our condensers. (This table does not show the advantages of the Aspherabs® in conserving brightness.) See page 80 for estimates of beam power.

Lamp Housing Model No.	Condenser Type	Collimated Beam Diameter	Relative Power in Collimated Beam	Useful Spectral Range
66032	1.5 Inch Series, F/1.5 Single Element, UV Grade Fused Silica	33	1	250-2500 nm
66033	1.5 Inch Series, F/1 Two Element, UV Grade Fused Silica	33	1.8	250-2500 nm
66034	1.5 Inch Series, F/0.85 Single Element, molded Aspheric, Pyrex®	33	2.2	360-2500 nm
66036 **66037**	3 Inch Series, F/0.7 Four Element, Aspherab™ Silica Borosilicate and UV Grade Fused Silica	69	3.1	360-2500 nm (Silica Borosilicate) 250-2500 nm (Fused Silica)

Starting the Lamps

These lamp housings all have built-in Hg lamp starters. The 68810 or 68805 Power Supplies drive this starter. Pressing the 'Lamp Start' command on the 68810 (or 68805) energizes the Hg lamp starters to produce a steadily increasing DC voltage across the lamp. The lamps start when the voltage reaches 2-3 kV. This low voltage starter is best for these lamps and produces no high frequency radiated or conducted noise. It does not start Xe or Hg(Xe) lamps.

Optical Accessories

Fig. 2 shows a few of the optical accessories available for these lamp housings. The accessories can be joined together in tandem. The lighter accessories may be supported off the focusing barrel of the condenser. These accessories are described in detail on pages 155 to 159. They include filter holders, secondary focusing lenses, shutters, dichroic beam turners and fiber optic input assemblies. Choose the appropriate size accessory for your condenser.

Saftey Interlocks & Lamp Usage Monitoring

These lamp housings have an interlock system which shuts off Oriel Power Supplies automatically if the housing door is opened or the housing overheats. We strongly recommend that you employ this low voltage interlock system even if you are using your own power supply.

Note that the 66031 Lamp Housing has no condenser lens. The large aperture in the housing should be blocked by your condenser or a plate to prevent access to the lamp terminals and for protection should the high pressure lamp explode.

A compact elapsed time indicator on the outside of the housings displays cumulative lamp running time.

Lamp Temperature

Mercury arc lamps are very sensitive to the temperature of the cooling air stream across the bulb. The bulb temperature controls the partial pressure of mercury in the lamp. The lamp current and, to a lesser extent, voltage, change as the bulb temperature is changed. The result is total radiation output change and significant change in spectral distribution.

To minimize these changes these Lamp Housings have a built in temperature sensor and fan speed control circuit. This ensures optimum operation of any lamp over significant swings in ambient temperature. Baffles are supplied to deal with the gross changes encountered when switching lamp types.

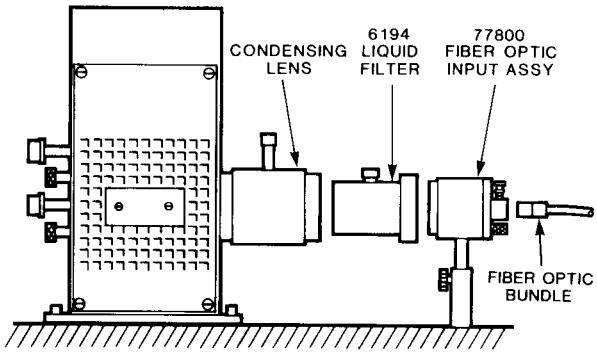


Fig. 2 66033 Lamp Housing attached to optical table with a liquid filter to remove the infrared and a fiber optic coupler.

UV & Ozone

Mercury lamps produce a lot of ultraviolet light. You should restrict access to the ultraviolet by shielding the beam and/or restricting entry to the area where you are using the lamp housing. We discuss exposure to UV on page 164.

Short wave UV produces ozone. Some of the ozone comes out of the housing in the cooling airstream. See pages 162 and 163 for details on how to dispose of ozone. We recommend our Ozone Eater™. The temperature sensitivity of these lamps requires a venting system with air flow control and some experimentation to establish the correct cooling rate.

Photofeedback Option

Lamp aging gradually reduces light output and alters the spectral distribution. For constant and reproducible output, the output should be sampled and the power supply controlled accordingly. An optional photofeedback sensor and control is described on page 160. If you are using only one of the mercury lines then use a line filter with the photofeedback sensor so the stabilization loop is only sensing the line of interest. See page 192 for line filters.

Mounting

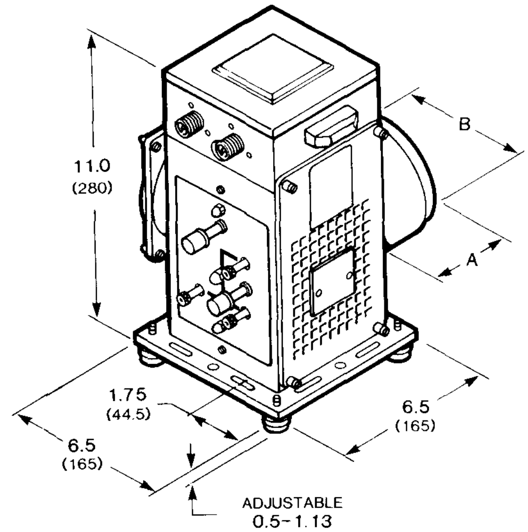
These lamp housings are heavy enough to be used as free standing units for many applications. Four adjustable rubber feet supplied with the housings allow 0.63 inch (16 mm) height adjustment.

Slots are provided for screw mounting to optical tables. The slots allow the housing to be translated 1 inch (25 mm) in the direction of the optical output before fastening the screws. The optical height of 4.0 inches (102 mm) may be increased by use of spacers. (See page 211).

To mount the housing to a standard rail or bench, order the 66075 Carrier Mounting Kit. This kit includes a mounting plate and clamping carrier. This gives you an optical axis height of 4.75 inches (121 mm) above the rail or bench. See Volume I for carriers, rails, and benches.

Compatible Power Supply

The 68810 Mercury Lamp Supply is compatible with these housings.



Dimensions in inches (mm).

Fig. 3 200-500 W Mercury Lamp Housing.

Model No.	A inches (mm)	B inches (mm)
66032 66033 66034	3.4 (86)	2.4 (61)
66036 66037	3.25 (91)	4.2 (107)

Cabling

6 ft. (1.8 m) long lamp cables, interlock cable, ignitor cable, and a 7.5 ft. (2.3 m) long fan cord are supplied with these housings.

The operating voltage of these housings is 95-135 VAC or 190-270 VAC, 50/60 Hz, switch selectable.

Odering Information

All lamp housings have a built in mercury starter and fan speed control.

66031 Lamp Housing ....
without condensing lens

66032 Lamp Housing ....
with F/1.5 condenser, UV grade Fused Silica, 1.5 Inch Series

66033 Lamp Housing ....
with F/1 condenser, UV grade Fused Silica, 1.5 Inch Series

66034 Lamp Housing ....
with F/0.85 condenser, molded Pyrex®
aspheric, 1.5 Inch Series

66036 Lamp Housing ....
with F/0.7 Aspherab® Condenser, Silica/
Borosilicate Crown, 3 Inch Series

66037 Lamp Housing ....
with F/0.7 Aspherab® Condenser, UV grade Fused Silica, 3 Inch Series

Socket Adapters

66144 Socket Adapter ....
for 200 W Hg lamp, model 6283

66161 Socket Adapter ....
for 350 W Hg lamp, model 6286

66162 Socket Adapter ....
for 500 W Hg lamp, model 6285

Rear Reflector

6148 *Replacement Rear Reflector* ....

Mounting Accessory

66075 Carrier Mounting Kit ....
(Includes clamping carrier)

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